ENGINEERING & design GUIDE

MacroAir™ TECHNOLOGIES

Built for Life™

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Thank you for including MacroAir HVLS fans in your project's specifications. As the inventors of High Volume Low Speed (HVLS) Technology and the "Big Fan" industrial ceiling fan concept, we are proud to provide the most cost effective "green" solution to air movement and de-stratification available. The breadth of our product line offers solutions for any size and type of building project. MacroAir Technologies state of the art HVLS technology can be found across the country and around the world.

We at MacroAir know that as architects and engineers you are charged with the task of creating comfortable and energy efficient environments. By specifying MacroAir fans you have made the best possible choice, one you can stand behind with confidence.

Our HVLS Fans offer maximum performance, reliability, and durability, achieved through, intelligent, simple, effective engineering and design. MacroAir fans are aesthetically pleasing air moving machines, no gizmos, no gadgets. MacroAir fans provide a long-term service life, and are the only HVLS fans on the market with a 12 year warranty and outside testing to prove that we are the industry leader. MacroAir HVLS fans feature, steel construction, anodized aluminum blades, a newly developed hybrid hub system plus innovative mounting and safety systems that provide peace of mind and ease of installation. With an operating cost of only pennies per hour our fans offer an incredible return on investment and are truly the "Greenest Fans on Earth".

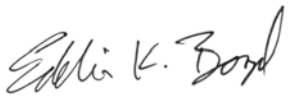
This Engineering and Design Guide should give you everything you need to confidently include HVLS fans on your project.

Included are:

- Drawings and specifications
- Control Panel Information
- Mounting System information
- Installation Manual
- Boilerplate for CSI specification
  - 1:1 AutoCAD fan views that can be used in building layouts
  - Editable version of the CSI spec that can be inserted into projects

Thank You for giving MacroAir Technologies the opportunity to be part of your current and future project designs. We look forward to providing you with the best solution and service in the HVLS industry. If you have questions or need further assistance Please contact our corporate office at (866) 668-3247 or visit our website www.macro-air.com.

Thanks again for choosing MacroAir Technologies fans!



Eddie Boyd, President /CEO

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Contact MacroAir Technologies Inc. .....

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CAD Downloads

Engineers requiring AutoCAD drawings may download version controlled data from the following link; **www.macro-air.com/engineering-design-guide**

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HVLS fan technology was invented by Walter and Edward Boyd to create efficient, gentle, non disruptive air movement over large areas of floor space, providing air circulation and de-stratification, thereby producing a comfortable environment while significantly reducing capitol outlay and energy costs.

The MacroAir Built for Life Advantage

Design History

Functionality and durability is what all of our customers want. Over the last 10 years MacroAir has successfully transformed the original 10 blade HVLS fan into the most functional and durable HVLS fan on the market with the perfect combination of these 4 components: Blade width, Number of blades, Rotor speed and the last most important component: Simplicity (relying on the laws of physics and not on gizmos or accessories).

The 6 Blade Design / Invertible Struts

Produces the same thrust (performance) as a 10 blade unit by using slightly higher rotor speed with lower torque, thus reducing stress to motor / gearbox, stress on the building, increasing service life, simplifying design, and reducing hanging / shipping weight, solidity and raw material usage by approximately 30%. Invert ability (Struts) and versatility (Efficient Airfoil Direction) is possible due to the Patent Pending Hub Design and the standard reverse feature.

Simplicity (rely on the laws of physics)

Because the horsepower required to move air increases with the cube of the speed of the air the creation of a big fan that moves air slowly combined with the unique air patterns on the floor under the fan has huge potential. MacroAir engineers have investigated adding wing tip accessories and blade modifications only to return to the huge advantage of the laws of physics for guidance regarding performance.

Performance

Thrust (force created by the air off the fan) is the only measurable benchmark of performance accepted by the design and engineering community when considering HVLS fans. All MacroAir HVLS fans are rated by both Thrust and CFM (converted by calculation from measured thrust numbers). MacroAir Fans are AMCA tested and certified.

Horsepower: The horsepower of the motor / gearbox unit is often misunderstood as it pertains to HVLS fans. Running a 1 HP motor at close to it's maximum output, providing gentle non disruptive air movement, is far more effective and energy efficient than running a 2 HP motor at 60% of its output to avoid blowing, disruptive air movement.

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Maximum Durability

Limiting the distance between the control panel (VFD) and the motor (but keeping it outside the swept area of the fan blades for safety) with the supplied motor cable and glands.

Increasing the rotor speed (6 blade/ 10). Lower torque increases service factor.

Installation

MacroAir HVLS Fans come as a complete system, power unit, mounting hardware, wiring kit and Controller (where applicable) nothing else is required, thus simplifying installation and reducing both installation time and cost.

Safety

All MacroAir 6 blade fans are supplied with redundant Integrated safety systems that include: our patent pending Interlocking safety system, guy wires, safety cable and hybrid hub assembly. These systems were designed to prevent the blades or hub from falling from the fan unit in the unlikely event of a catastrophic failure.

Controllers are EMC compliant and meet all world safety standards. All variable speed fans feature EMI / RFI suppression, lockable service disconnect, low voltage controls, NEMA enclosures and shielded motor cable.

Fire Safety: MacroAir 6 blade fans offer the lowest solidity ratio (lowest ESFR sprinkler obstruction potential) in the HVLS Industry. Controllers are E-stop compatible for shutdown by ESFR systems or any other auxiliary shutdown device.

Warranty

Simply follow the installation Manual and MacroAir warranties:

Motor, Gearbox and Control Panel --- 12 Years*

Blades, Hub and Mounting System --- Lifetime*

* Contact MacroAir Technologies for full Warranty details

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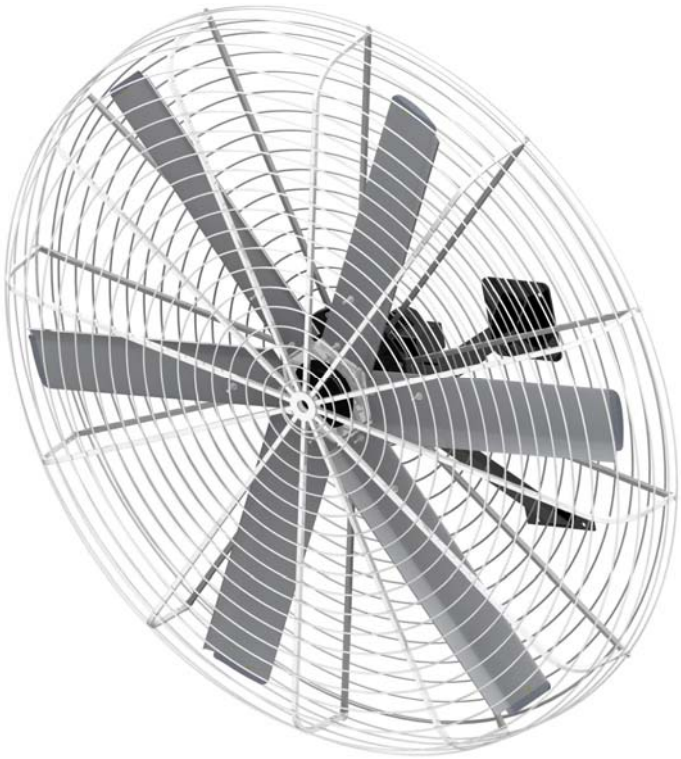
eco6 Line



Optimizes Comfort for People *(When Height and / or Obstructions are a limiting factor)*

eco6 Fans are designed to enhance the comfort of people. They generate a comfortable, non turbulent air flow, providing both a cooling effect and air de-stratification. The eco6 fan can accomplish this in a limited space environment where ceiling / roof height and or racking, shelving units or other obstructions prevent the use of a larger overhead fan. eco6 fans can be used either vertically or horizontally with options for pole, wall and ceiling mounting.

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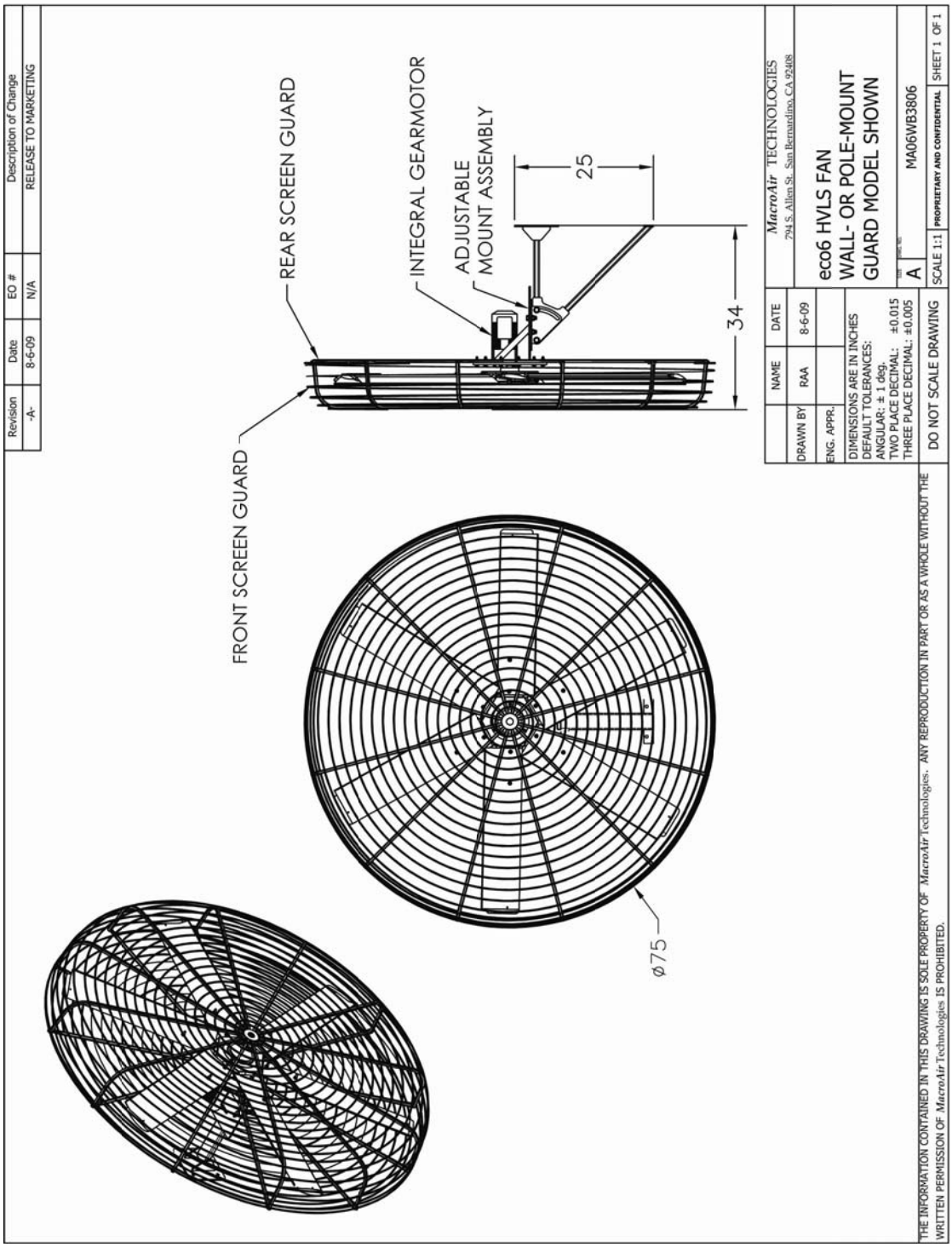

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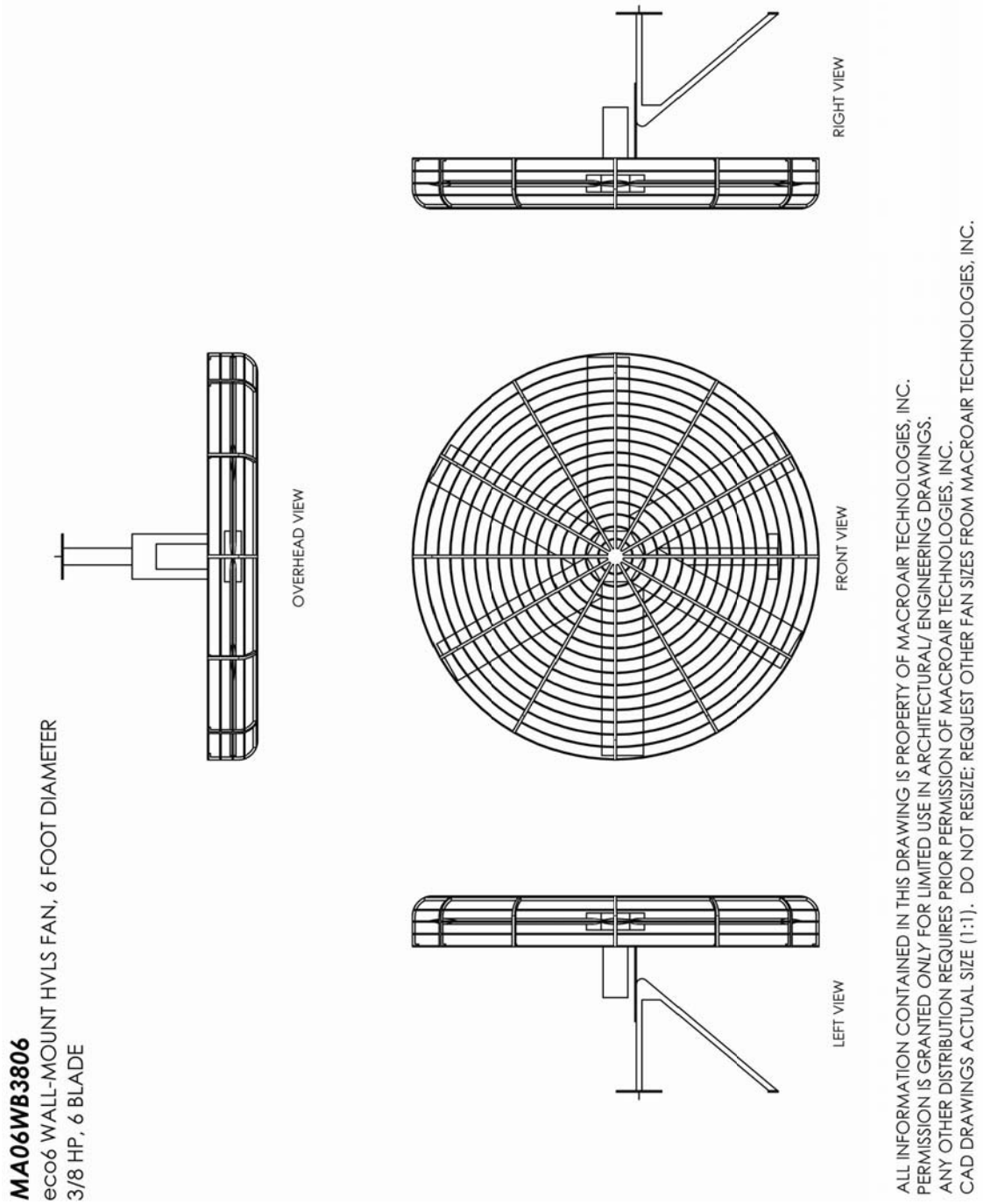
MA06WB3806/NG/SS/SSNG

eco6 Guard Fan . Airvolution™ Family


RIGHT VIEW
OVERHEAD VIEW
FRONT VIEW
LEFT VIEW
MA06WB3806
eco6 WALL-MOUNT HVLS FAN, 6 FOOT DIAMETER
3/8 HP, 6 BLADE
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"10.0 lbf"

MA06WB3806/NG/SS/SSNG

eco6 Guard Fan . Airvolution™ Family

General

Model Numbers
- **MA06WB3806** ---------- (Variable Speed with Fan Guard)
- **MA06WB3806-NG** ---------- (Variable Speed with No Fan Guard)
- **MA06WB3806-SS** ---------- (Single Speed with Fan Guard)
- **MA06WB3806-SSNG** ---------- (Single Speed with No Fan Guard)

Diameter ---------- 6 FT
Blade Style ---------- WickerBill
Number of Blades ---------- 6
Nominal Horsepower ---------- 0.375 HP
Hanging Weight (+70 LBS for Guard Models) ---------- 201 LBS
Shipping Weight (Including MCP, Mounting Hardware and Screen) ---------- 420 LBS

Performance (at max speed)

Displacement (fwd, blowing down) ---------- 26,432 CFM
Displacement (rev, blowing up) ---------- 20,686 CFM
Maximum Speed ---------- 204 RPM
Power Usage @ Max. Speed ---------- .265 KW
Efficiency @ 75% Max. Speed ---------- 111.51 CFM/Watt
Maximum Effective Area ---------- 100 FT x 20 FT
Typical Industrial Spacing ---------- 45 FT
Typical Dairy Spacing ---------- 40 FT

Construction

Frame ---------- Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub ---------- 356 T-6 Cast Aluminum
Solid Steel Blade Struts (Invertible) ---------- Zinc Plated / 1020 Cold Rolled Steel
Blades ---------- Anodized / 6063-T6 Aluminum
Blade End Caps ---------- Cast Aluminum

Safety Components

Blade Retaining Links (6) (NG models only) ---------- Zinc Plated / 10 GA A569 Steel
Safety Cable ---------- Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires (Ceiling mount only) ---------- Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6) (NG models only) ---------- Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring ---------- Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Wall Mount ---------- Black Powder Coat / 35° Horizontal Adjustment and 45° Vertical Adjustment

Motor

HP ---------- .375
Phase ---------- 3
Volts ---------- 208-230/460 3Ø
Insulation Class ---------- F

Gearbox

Type ---------- 2-Stage Helical
Service Interval ---------- Lubed For Life

Motor Control Panel (MCP) (Variable Speed Models)

Standard Power ---------- 208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure ---------- NEMA 1
Disconnect Switch ---------- 20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X ---------- Fwd/Off/Rev w/Speed Control Knob
RF Line Filter ---------- Built In
VFD Motor Drive Cable ---------- 25 Feet
Remote Cable ---------- 100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional) ---------- Consult Factory
Enclosure (Optional) ---------- NEMA 4/ 4x
50hz Operation (Optional)
Line Reactor (480V Only) (Optional)

Line Starter / Circuit Breaker (SS Models)

Lockable Disconnect with load protection & On/Off ---------- Starter Button

Warranty

Motor, Gearbox & Control Panel ---------- 12 YRS.*
Blades, Hub & Mounting System ---------- Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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Airvolution Line

Optimizes Comfort for People

Airvolution fans are specifically designed to enhance the comfort of people. A fan's large column of air pushing downward builds a comfortable deep floor jet of air that entrains outward. The depth of the floor jet (wall of moving air) is related to the diameter of the fan. There is no need for speed. Air velocities from 3 to 5 miles an hour optimize the cooling effect of air sweeping across moist skin. Too much air is turbulent and drying; it creates unwanted drafts and higher air velocities can heat the skin instead of cooling it.

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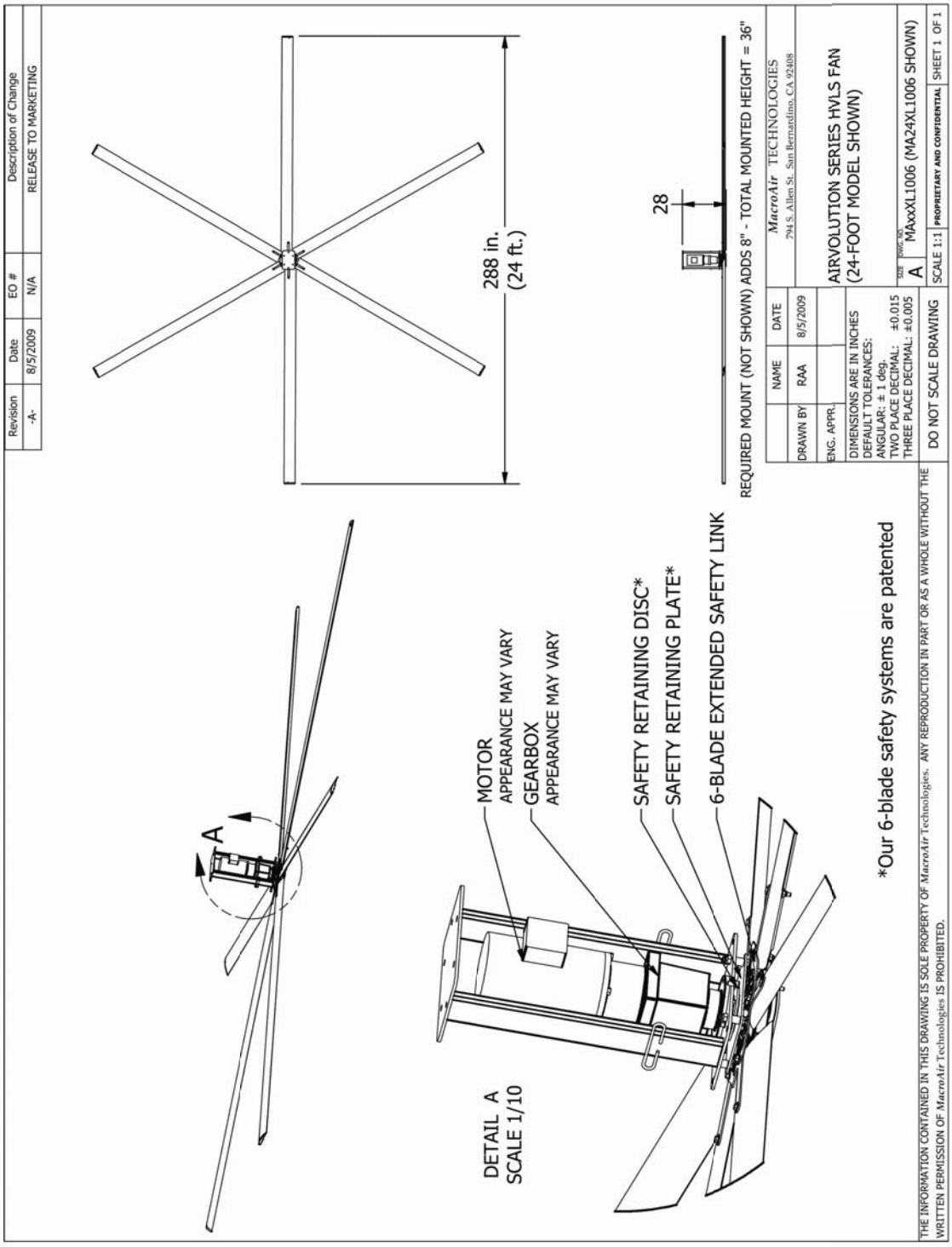

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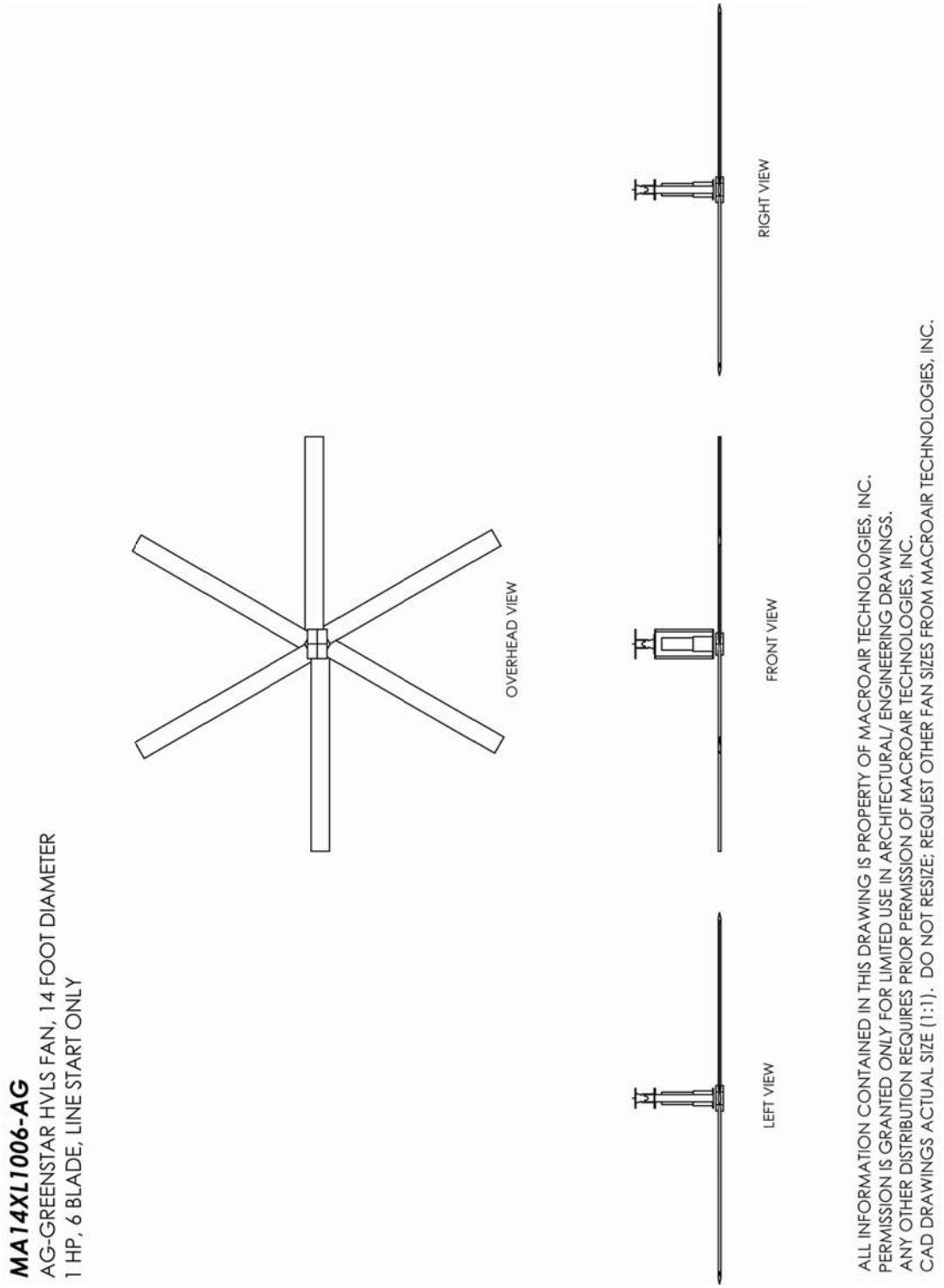
MA14XL1006-AG


MA14XL1006-AG
AG-GREENSTAR HVLS FAN, 14 FOOT DIAMETER
1 HP, 6 BLADE, LINE START ONLY
OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"34.5 lbf"

MA14XL1006-AG

AG-GreenStar™ . Airvolution™ Family

General

Model Number	MA14XL1006-AG
Diameter	14 FT
Blade	Whisperfoil XL
Number of Blades	6
Nominal Horsepower	1.0 HP
Hanging Weight (average)	194 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	345 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	84" X 29" X 18" / 134 lbs / 2.1 X .74 X .46 Meters / 60.9 Kg

Performance (at max speed)

Displacement (fwd, blowing down)	128,010 CFM
Maximum Speed	104 RPM
Power Usage @ Max. Speed	.678 KW
Efficiency @ 75% Max. Speed	188.81 CFM/Watt
Maximum Effective Area	8,000 SQ/ FT
Typical Industrial Spacing	70 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	1.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Line Starter / Circuit Breaker

Lockable Disconnect with load protection & On/Off — Starter Button

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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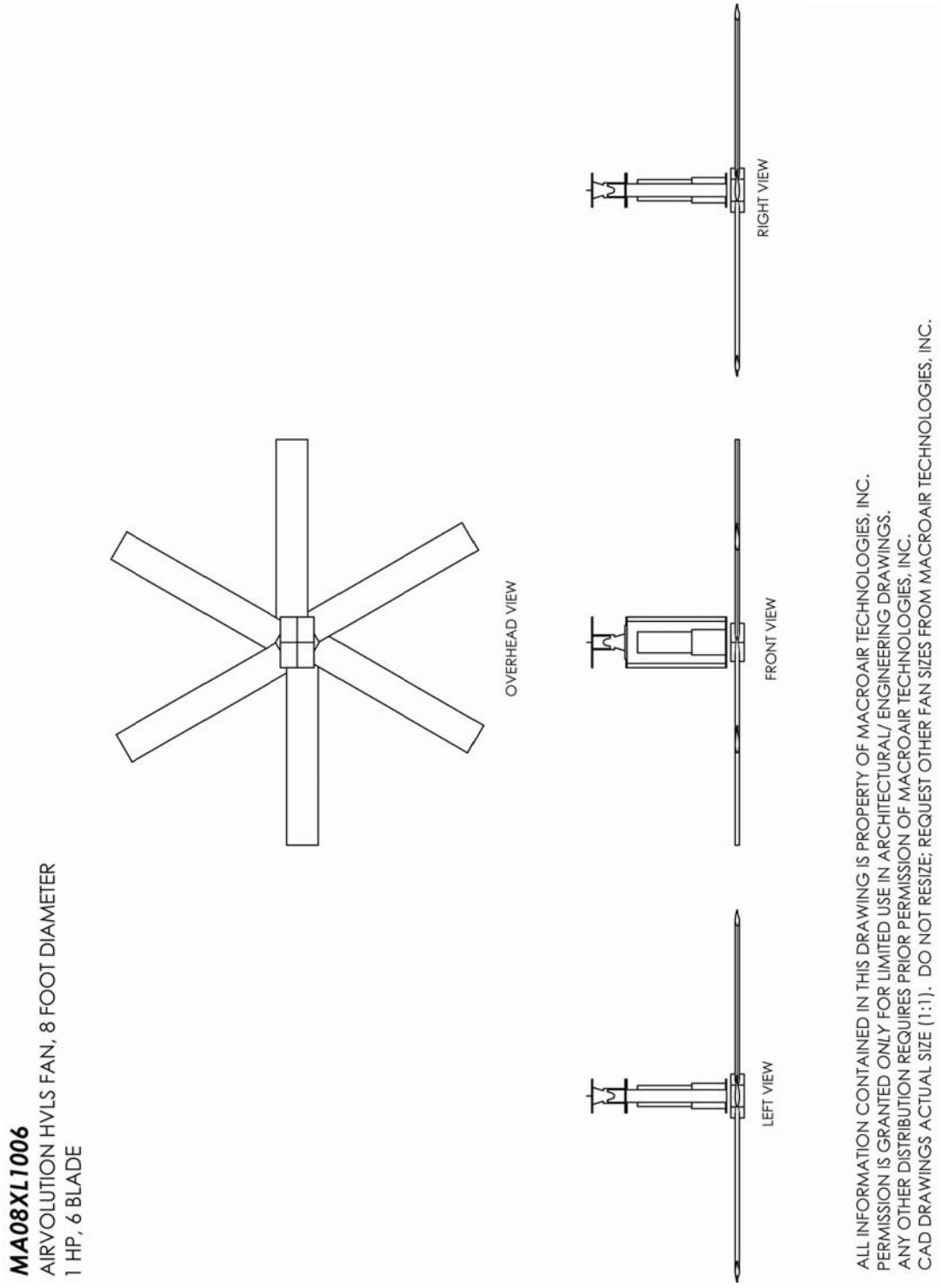
MA08XL1006


MA08XL1006
AIRVOLUTION HVLS FAN, 8 FOOT DIAMETER
1 HP, 6 BLADE
OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"17.8 lbf"

MA08XL1006
Airvolution™ Family

General

Model Number	MA08XL1006
Diameter	8 FT
Blade Style	WhisperFoil XL
Number of Blades	6
Nominal Horsepower	1.0 HP
Hanging Weight (average)	160 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	315 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	47" X 29" X 18" / 101 lbs 1.2 X .74 X .46 Meters / 46 Kg

Performance (at max speed)

Displacement (fwd, blowing down)[1]	53,623 CFM
Displacement (rev, blowing up)	37,585 CFM
Maximum Speed	206 RPM
Power Usage @ Max. Speed	0.684 KW
Efficiency @ 75% Max. Speed	78.39 CFM/Watt
Maximum Effective Area	4,000 SQ/ FT
Typical Industrial Spacing	55 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	1.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Motor Control Panel (MCP)

Standard Power	208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure	NEMA 1
Disconnect Switch	20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X	Fwd/Off/Rev w/Speed Control Knob
RF Line Filter	Built In
VFD Motor Drive Cable	25 Feet
Remote Cable	100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional)	Consult Factory
Enclosure (Optional)	NEMA 4/ 4x

50hz Operation (Optional)
Line Reactor (480V Only) (Optional)

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year
1 AMCA Certified, See Air Performance Certified Ratings

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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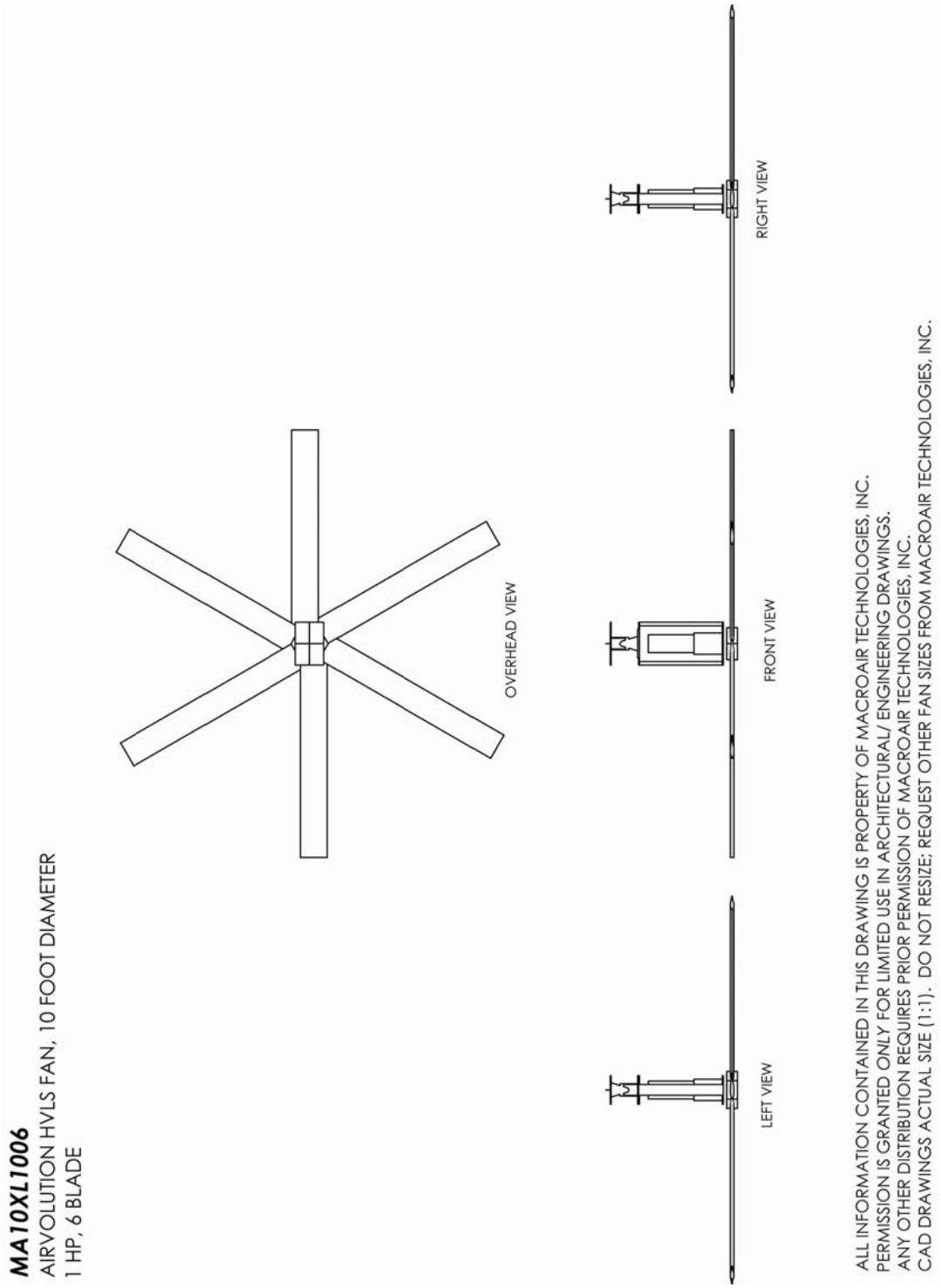
MA10XL1006


OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
MA10XL1006
AIRVOLUTION HVLS FAN, 10 FOOT DIAMETER
1 HP, 6 BLADE
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Build: v 1.0

MacroAir TECHNOLOGIES Built for Life™

THRUST
"19.7 lbf"

MA10XL1006
Airvolution™ Family

General

Model Number	MA10XL1006
Diameter	10 FT
Blade Style	WhisperFoil XL
Number of Blades	6
Nominal Horsepower	1.0 HP
Hanging Weight (average)	181 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	325 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	62" X 29" X 18" / 106 lbs / 1.6 X .74 X .46 Meters / 48.2 Kg

Performance (at max speed)

Displacement (fwd, blowing down)[1]	83,025 CFM
Displacement (rev, blowing up)	58,118 CFM
Maximum Speed	144 RPM
Power Usage @ Max. Speed	.559 KW
Efficiency @ 75% Max. Speed	148.52 CFM/Watt
Maximum Effective Area	5,000 SQ/ FT
Typical Industrial Spacing	60 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	1.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Motor Control Panel (MCP) (Variable Speed Models)

Standard Power	208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure	NEMA 1
Disconnect Switch	20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X	Fwd/Off/Rev w/Speed Control Knob
RF Line Filter	Built In
VFD Motor Drive Cable	25 Feet
Remote Cable	100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional)	Consult Factory
Enclosure (Optional)	NEMA 4/ 4x

50hz Operation (Optional)
Line Reactor (480V Only) (Optional)

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year
1 AMCA Certified, See Air Performance Certified Ratings

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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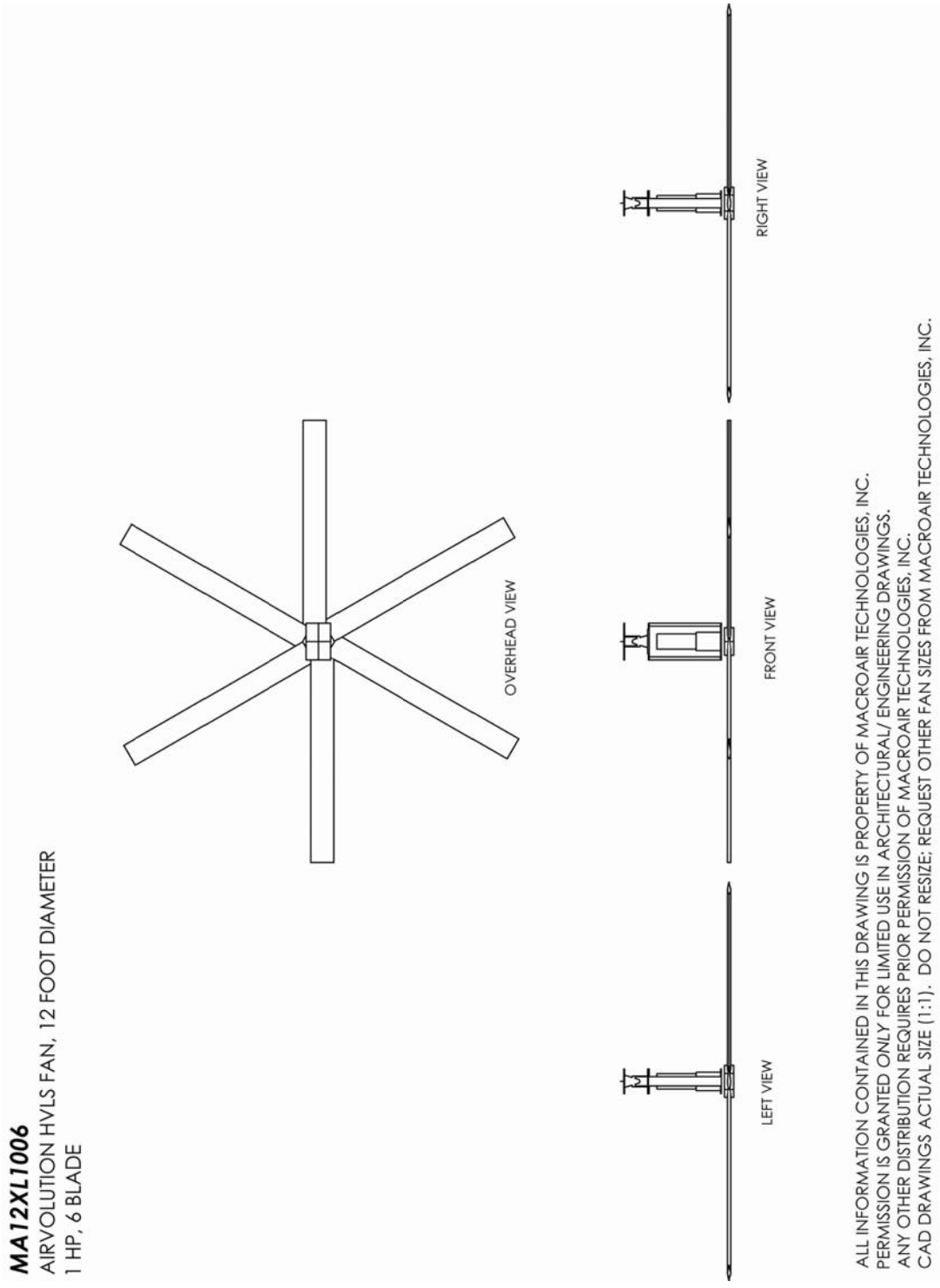
MA12XL1006


MA12XL1006
AIRVOLUTION HVLS FAN, 12 FOOT DIAMETER
1 HP, 6 BLADE
OVERHEAD VIEW
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"27.3 lbf"

MA12XL1006
Airvolution™ Family

General

Model Number	MA12XL1006
Diameter	12 FT
Blade Style	WhisperFoil XL
Number of Blades	6
Nominal Horsepower	1.0 HP
Hanging Weight (average)	190 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	335 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	72" X 29" X 18" / 111 lbs / 1.8 X .74 X .46 Meters / 50.5 Kg

Performance (at max speed)

Displacement (fwd, blowing down)[1]	97,695 CFM
Displacement (rev, blowing up)	68,387 CFM
Maximum Speed	121 RPM
Power Usage @ Max. Speed	.605 KW
Efficiency @ 75% Max. Speed	161.48 CFM/Watt
Maximum Effective Area	7,000 SQ/ FT
Typical Industrial Spacing	65 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	1.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Motor Control Panel (MCP)

Standard Power	208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure	NEMA 1
Disconnect Switch	20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X	Fwd/Off/Rev w/Speed Control Knob
RF Line Filter	Built In
VFD Motor Drive Cable	25 Feet
Remote Cable	100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional)	Consult Factory
Enclosure (Optional)	NEMA 4/ 4x
50hz Operation (Optional)	
Line Reactor (480V Only) (Optional)	

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year
1 AMCA Certified, See Air Performance Certified Ratings

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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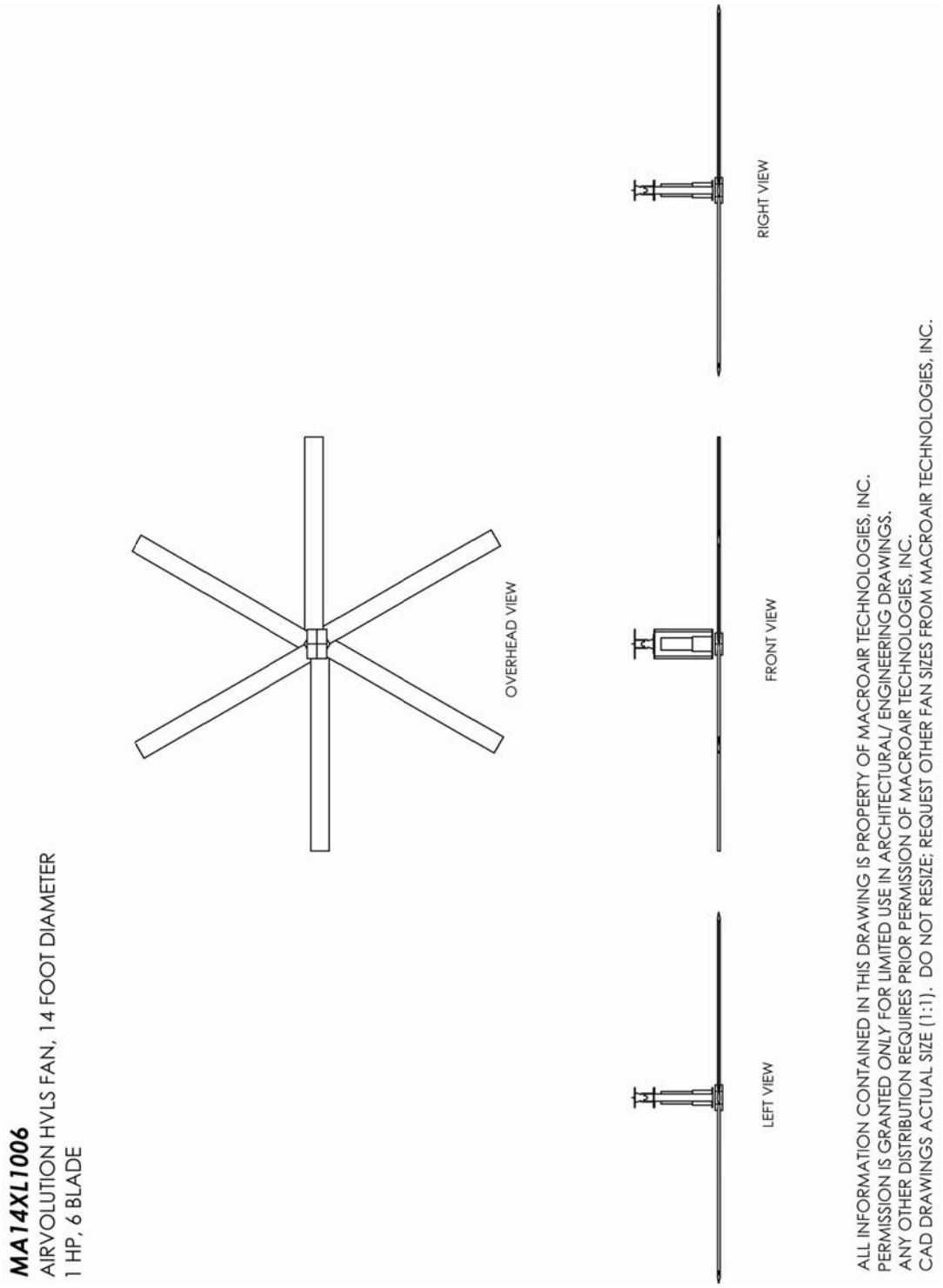
MA14XL1006


MA14XL1006
AIRVOLUTION HVLS FAN, 14 FOOT DIAMETER
1 HP, 6 BLADE
OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"34.6 lbf"

MA14XL1006
Airvolution™ Family

General

Model Number	MA14XL1006
Diameter	14 FT
Blade Style	WhisperFoil XL
Number of Blades	6
Nominal Horsepower	1.0 HP
Hanging Weight (average)	194 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	355 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	84" X 29" X 18" / 134 lbs / 2.1 X .74 X .46 Meters / 60.9 Kg

Performance (at max speed)

Displacement (fwd, blowing down)	128,010 CFM
Displacement (rev, blowing up)	89,607 CFM
Maximum Speed	104 RPM
Power Usage @ Max. Speed	.734 KW
Efficiency @ 75% Max. Speed	174.40 CFM/Watt
Maximum Effective Area	8,000 SQ/ FT
Typical Industrial Spacing	70 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	1.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Motor Control Panel (MCP)

Standard Power	208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure	NEMA 1
Disconnect Switch	20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X	Fwd/Off/Rev w/Speed Control Knob
RF Line Filter	Built In
VFD Motor Drive Cable	25 Feet
Remote Cable	100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional)	Consult Factory
Enclosure (Optional)	NEMA 4/ 4x

50hz Operation (Optional)
Line Reactor (480V Only) (Optional)

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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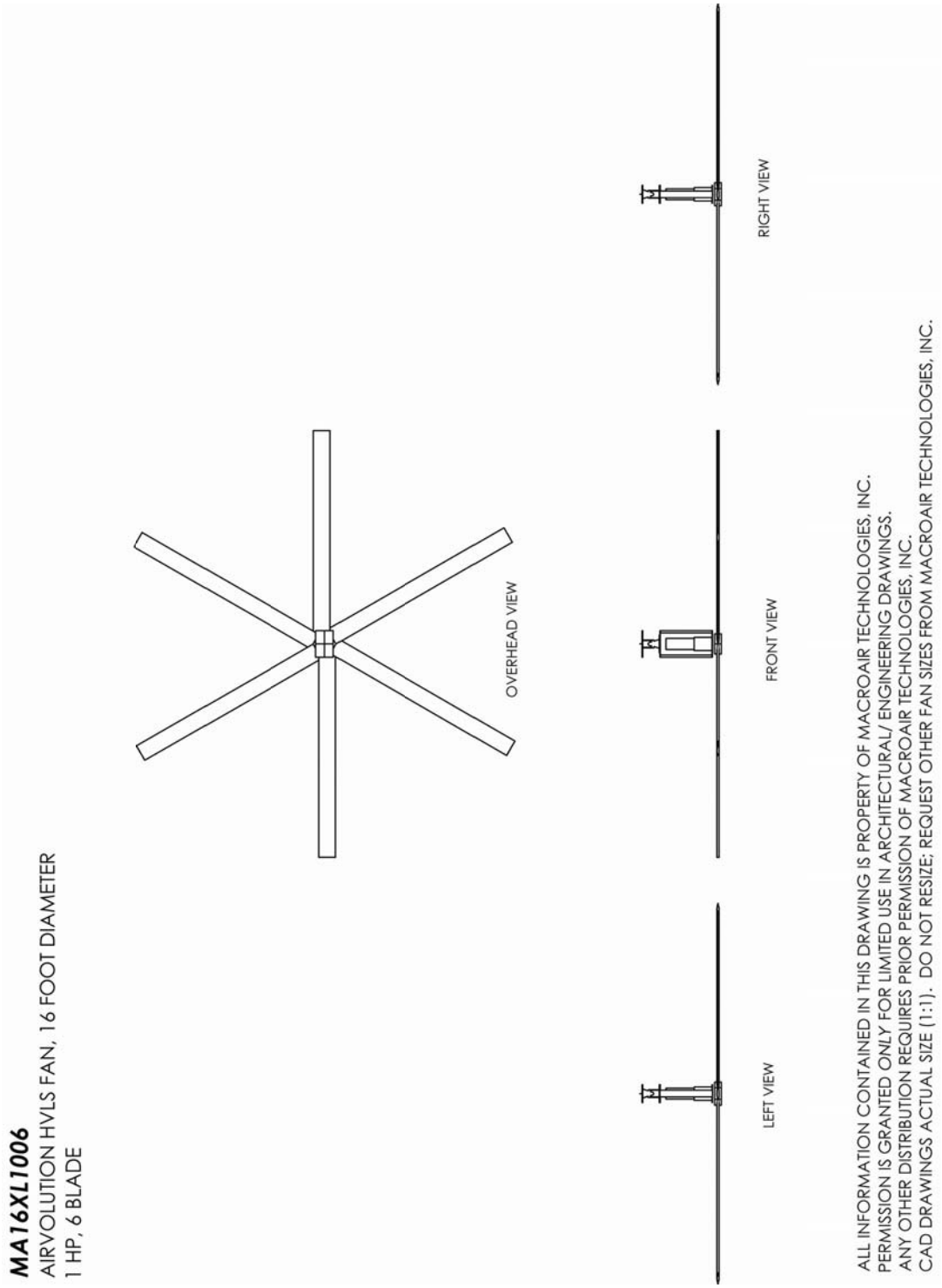
MA16XL1006


MA16XL1006
AIRVOLUTION HVLS FAN, 16 FOOT DIAMETER
1 HP, 6 BLADE
OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"40.7 lbf"

MA16XL1006
Airvolution™ Family

General

Model Number	MA16XL1006
Diameter	16 FT
Blade	WhisperFoil XL
Number of Blades	6
Nominal	1.0 HP
Hanging Weight (average)	208 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	365 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	96" X 29" X 18" / 139 lbs / 2.4 X .74 X .46 Meters / 63.2 Kg

Performance (at max speed)

Displacement (fwd, blowing down)	158,911 CFM
Displacement (rev, blowing up)	111,238 CFM
Maximum Speed	88 RPM
Power Usage @ Max. Speed	.693 KW
Efficiency @ 75% Max. Speed	229.31 CFM/Watt
Maximum Effective Area	15,000 SQ/ FT
Typical Industrial Spacing	90 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	1.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Motor Control Panel (MCP)

Standard Power	208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure	NEMA 1
Disconnect Switch	20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X	Fwd/Off/Rev w/Speed Control Knob
RF Line Filter	Built In
VFD Motor Drive Cable	25 Feet
Remote Cable	100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional)	Consult Factory
Enclosure (Optional)	NEMA 4/ 4x

50hz Operation (Optional)
Line Reactor (480V Only) (Optional)

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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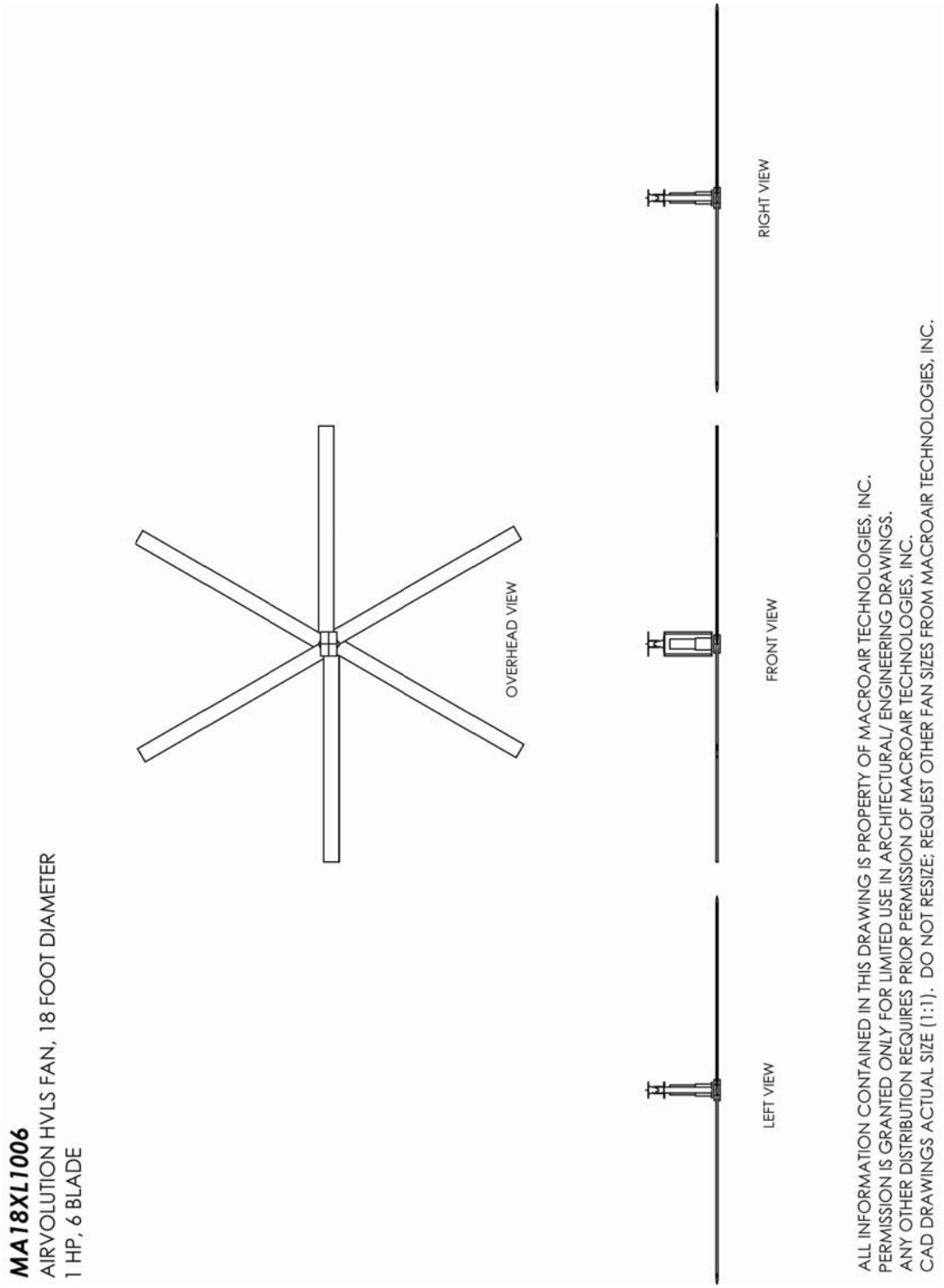
MA18XL1006


MA18XL1006
AIRVOLUTION HVLS FAN, 18 FOOT DIAMETER
1 HP, 6 BLADE
OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"40.8 lbf"

MA18XL1006
Airvolution™ Family

General

Model Number	MA18XL1006
Diameter	18 FT
Blade Style	WhisperFoil XL
Number of Blades	6
Nominal Horsepower	1.0 HP
Hanging Weight (average)	222 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	396 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	112" X 29" X 18" / 146 lbs / 2.8 X .74 X .46 Meters / 66.4 Kg

Performance (at max speed)

Displacement (fwd, blowing down)[1]	179,015 CFM
Displacement (rev, blowing up)	125,311 CFM
Maximum Speed	71 RPM
Power Usage @ Max. Speed	.648 KW
Efficiency @ 75% Max. Speed	276.26 CFM/Watt
Maximum Effective Area	15,000 SQ/ FT
Typical Industrial Spacing	90 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	1.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Motor Control Panel (MCP)

Standard Power	208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure	NEMA 1
Disconnect Switch	20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X	Fwd/Off/Rev w/Speed Control Knob
RF Line Filter	Built In
VFD Motor Drive Cable	25 Feet
Remote Cable	100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional)	Consult Factory
Enclosure (Optional)	NEMA 4/ 4x
50hz Operation (Optional)	
Line Reactor (480V Only) (Optional)	

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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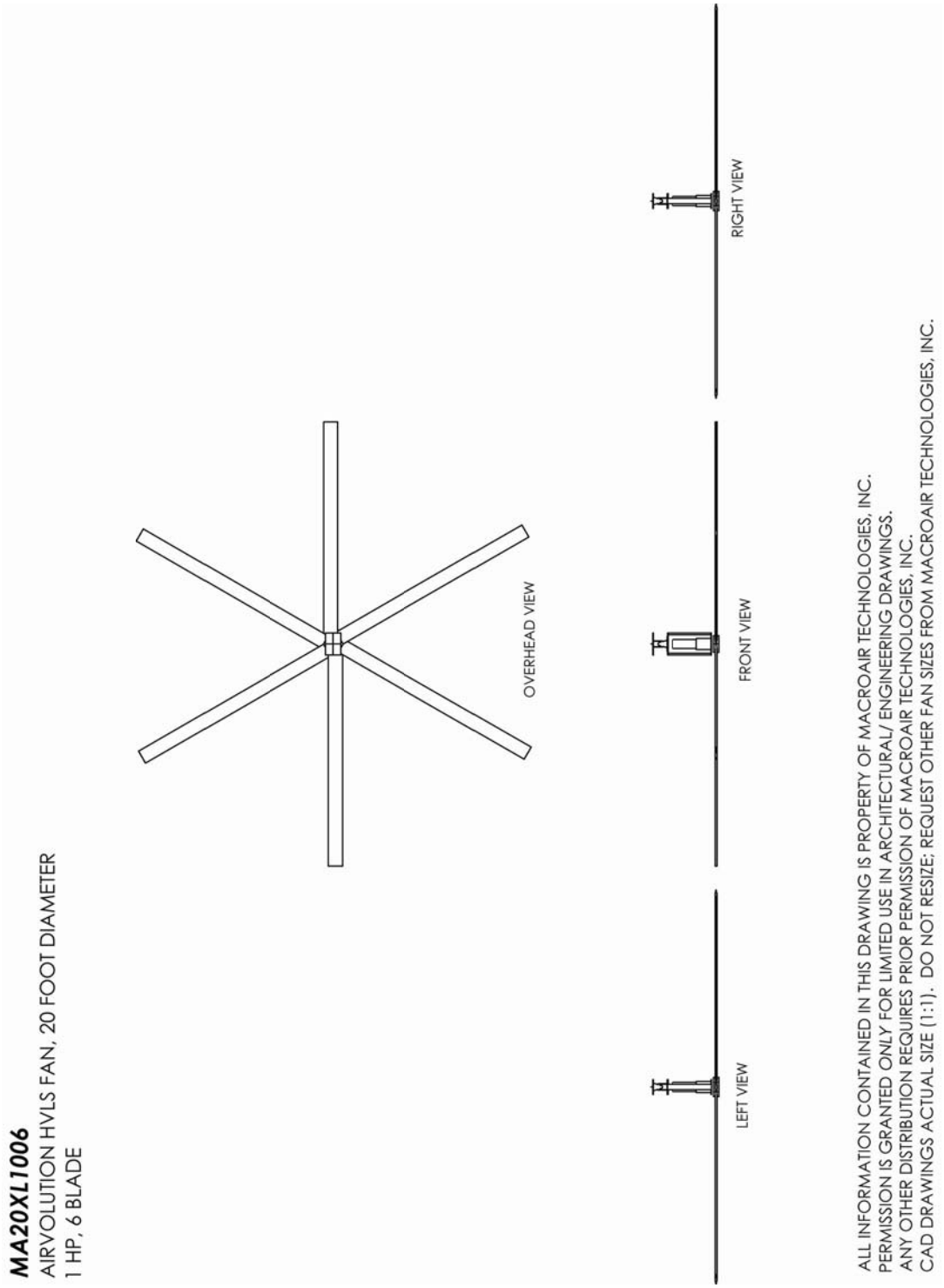
MA20XL1006


MA20XL1006
AIRVOLUTION HVLS FAN, 20 FOOT DIAMETER
1 HP, 6 BLADE
OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"42.0 lbf"

MA20XL1006
Airvolution™ Family

General

Model Number	MA20XL1006
Diameter	20 FT
Blade Style	WhisperFoil XL
Number of Blades	6
Nominal Horsepower	1.0 HP
Hanging Weight (average)	232 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	406 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	120" X 29" X 18" / 152 lbs / 3.0 X .74 X .46 Meters / 69.1 Kg

Performance (at max speed)

Displacement (fwd, blowing down)	201,805 CFM
Displacement (rev, blowing up)	141,264 CFM
Maximum Speed	60 RPM
Power Usage @ Max. Speed	.592 KW
Efficiency @ 75% Max. Speed	340.89 CFM/Watt
Maximum Effective Area	15,000 SQ/ FT
Typical Industrial Spacing	95 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	1.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Motor Control Panel (MCP)

Standard Power	208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure	NEMA 1
Disconnect Switch	20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X	Fwd/Off/Rev w/Speed Control Knob
RF Line Filter	Built In
VFD Motor Drive Cable	25 Feet
Remote Cable	100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional)	Consult Factory
Enclosure (Optional)	NEMA 4/ 4x

50hz Operation (Optional)
Line Reactor (480V Only) (Optional)

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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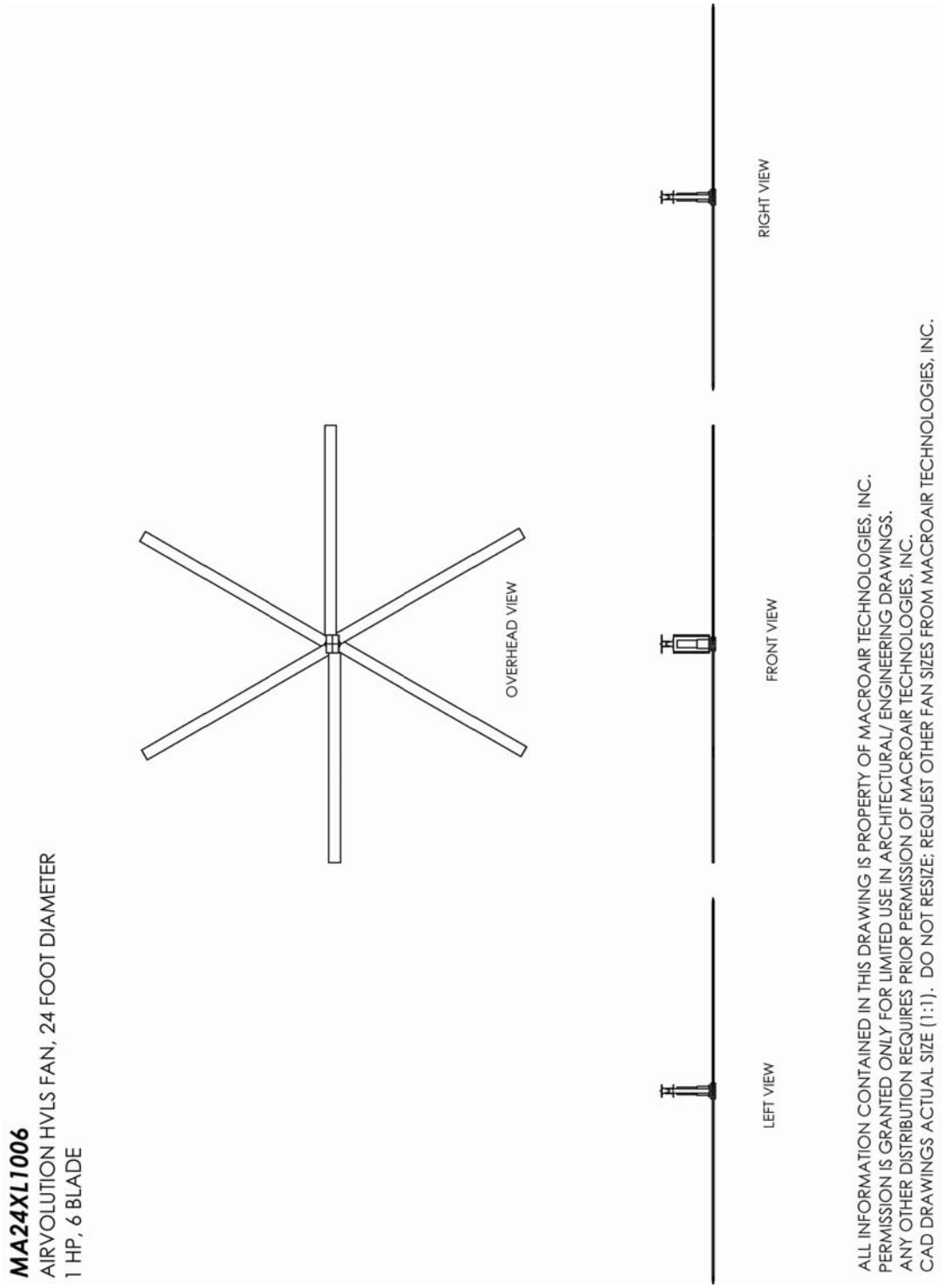
MA24XL1006


MA24XL1006
AIRVOLUTION HVLS FAN, 24 FOOT DIAMETER
1 HP, 6 BLADE
OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"54.4 lbf"

MA24XL1006
Airvolution™ Family

General

Model Number	MA24XL1006
Diameter	24 FT
Blade Style	WhisperFoil XL
Number of Blades	6
Nominal Horsepower	1.0 HP
Hanging Weight (average)	240 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	436 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	140" X 29" X 18" / 191 lbs / 3.6 X .74 X .46 Meters / 86.8 Kg

Performance (at max speed)

Displacement (fwd, blowing down)	275,694 CFM
Displacement (rev, blowing up)	192,986 CFM
Maximum Speed	50 RPM
Power Usage @ Max. Speed	.694 KW
Efficiency @ 75% Max. Speed	397.25 CFM/Watt
Maximum Effective Area	18,000 SQ/ FT
Typical Industrial Spacing	100 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	1.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Motor Control Panel (MCP)

Standard Power	208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure	NEMA 1
Disconnect Switch	20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X	Fwd/Off/Rev w/Speed Control Knob
RF Line Filter	Built In
VFD Motor Drive Cable	25 Feet
Remote Cable	100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional)	Consult Factory
Enclosure (Optional)	NEMA 4/ 4x

50hz Operation (Optional)
Line Reactor (480V Only) (Optional)

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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MaxAir Line

Excels for Agriculture and Special Applications

Higher air velocities are often required when cooling livestock, or where extreme moisture, bacteria, mold, mildew, and wet conditions such as wet floors exist. In these circumstances Higher air velocities equate to higher performance factors and a healthier environment. MaxAir fans are engineered to deliver the optimal air flow for these special conditions.

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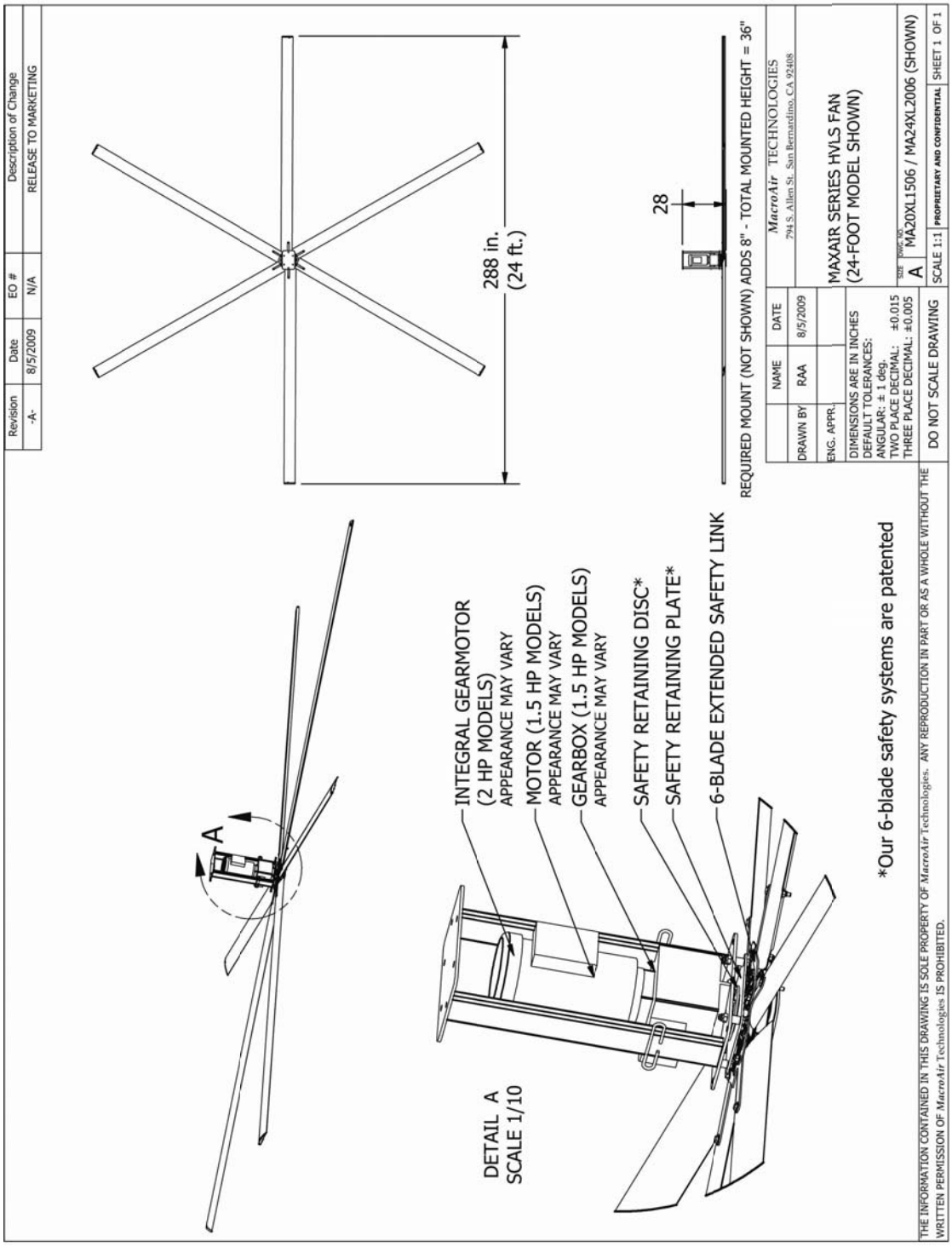

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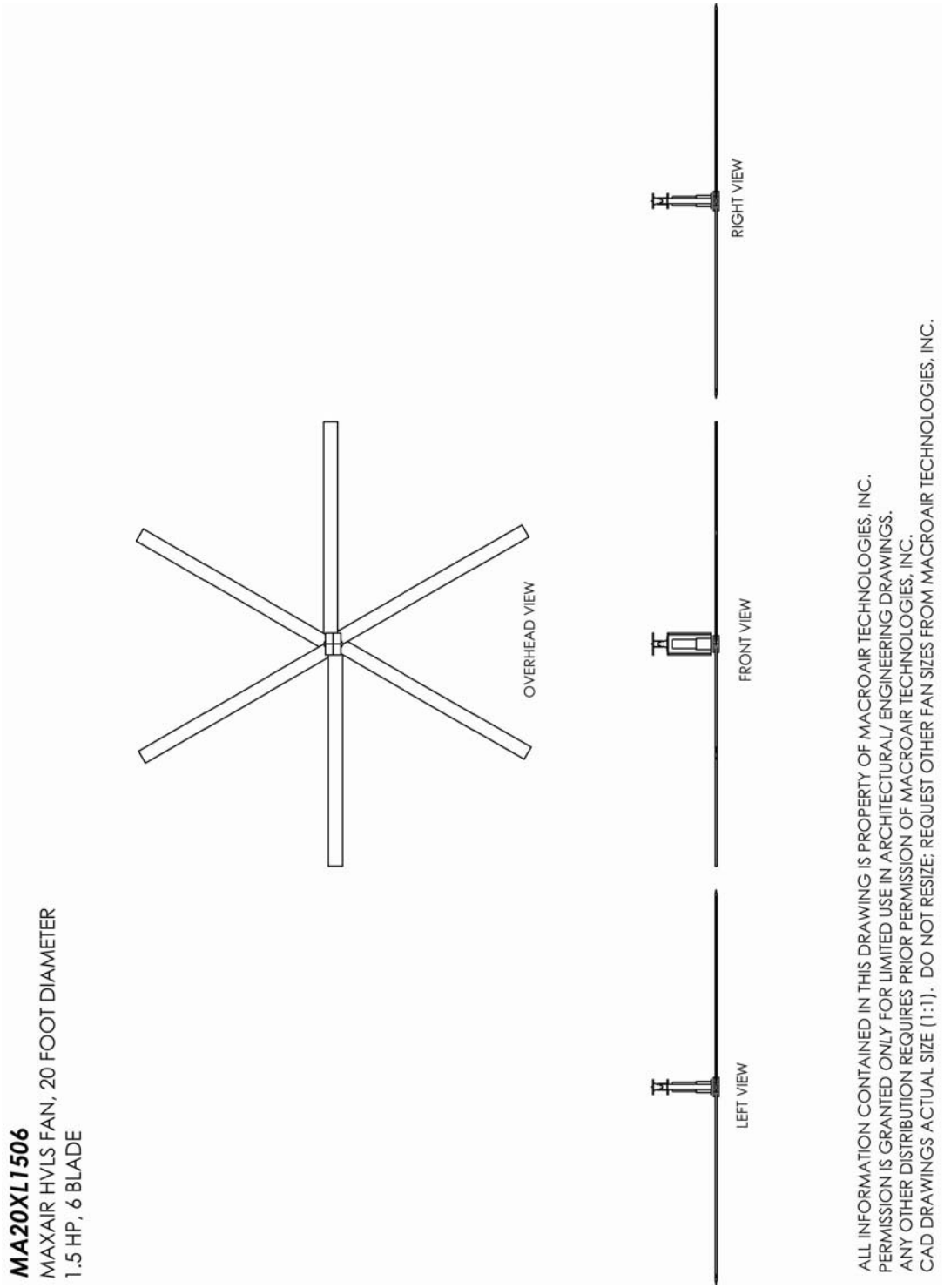
MA20XL1506


MA20XL1506
MAXAIR HVLS FAN, 20 FOOT DIAMETER
1.5 HP, 6 BLADE
OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
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MacroAir TECHNOLOGIES Built for Life™

THRUST
"81.0 lbf"

MA20XL1506
MaxAir™ Family

General
Model Number ---------- MA20XL1506
Diameter ---------- 20 FT
Blade Style ---------- WhisperFoil XL
Number of Blades ---------- 6
Nominal Horsepower ---------- 1.5 HP
Hanging Weight (average) ---------- 217 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average) ---------- 388 LBS
Power Unit Pallet Dimensions / Weight ---------- 36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight ---------- 120" X 29" X 18" / 152 lbs / 3.0 X .74 X .46 Meters / 69.1 Kg

Performance (at max speed)
Displacement (fwd, blowing down) ---------- 237,231 CFM
Displacement (rev, blowing up) ---------- 166,062 CFM
Maximum Speed ---------- 70 RPM
Power Usage @ Max. Speed ---------- 1.032 KW
Efficiency @ 75% Max. Speed ---------- 229.88 CFM/Watt
Maximum Effective Area ---------- 18,000 SQ/ FT
Typical Industrial Spacing ---------- 100 FT

Construction
Frame ---------- Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub ---------- 356 T-6 Cast Aluminum
Blade Struts (Invertible) ---------- Black Anodized / 6061 T-6 Aluminum
Blades ---------- Anodized / 6063-T6 Aluminum
Blade End Caps ---------- ABS Plastic

Safety Components
Blade Retaining Links (6) ---------- Zinc Plated / 10 GA A569 Steel
Safety Cable ---------- Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires ---------- Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6) ---------- Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring ---------- Zinc Plated / 3/16 A569 Steel

Mounting Hardware
Standard Mount ---------- Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional) ---------- Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional) ---------- Consult Factory
Additional Drop Extensions (Optional) ---------- Up to 10 FT in 1 FT Increments

Motor
HP ---------- 1.5
Phase ---------- 3
Volts ---------- 208-230/460 3Ø
Insulation Class ---------- F

Gearbox
Type ---------- 2-Stage Helical
Service Interval ---------- Lubed For Life

Motor Control Panel (MCP)
Standard Power ---------- 208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure ---------- NEMA 1
Disconnect Switch ---------- 20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X ---------- Fwd/Off/Rev w/Speed Control Knob
RF Line Filter ---------- Built In
VFD Motor Drive Cable ---------- 25 Feet
Remote Cable ---------- 100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional) ---------- Consult Factory
Enclosure (Optional) ---------- NEMA 4/ 4x
50hz Operation (Optional)
Line Reactor (480V Only) (Optional)

Warranty
Motor, Gearbox & Control Panel ---------- 12 YRS.*
Blades, Hub & Mounting System ---------- Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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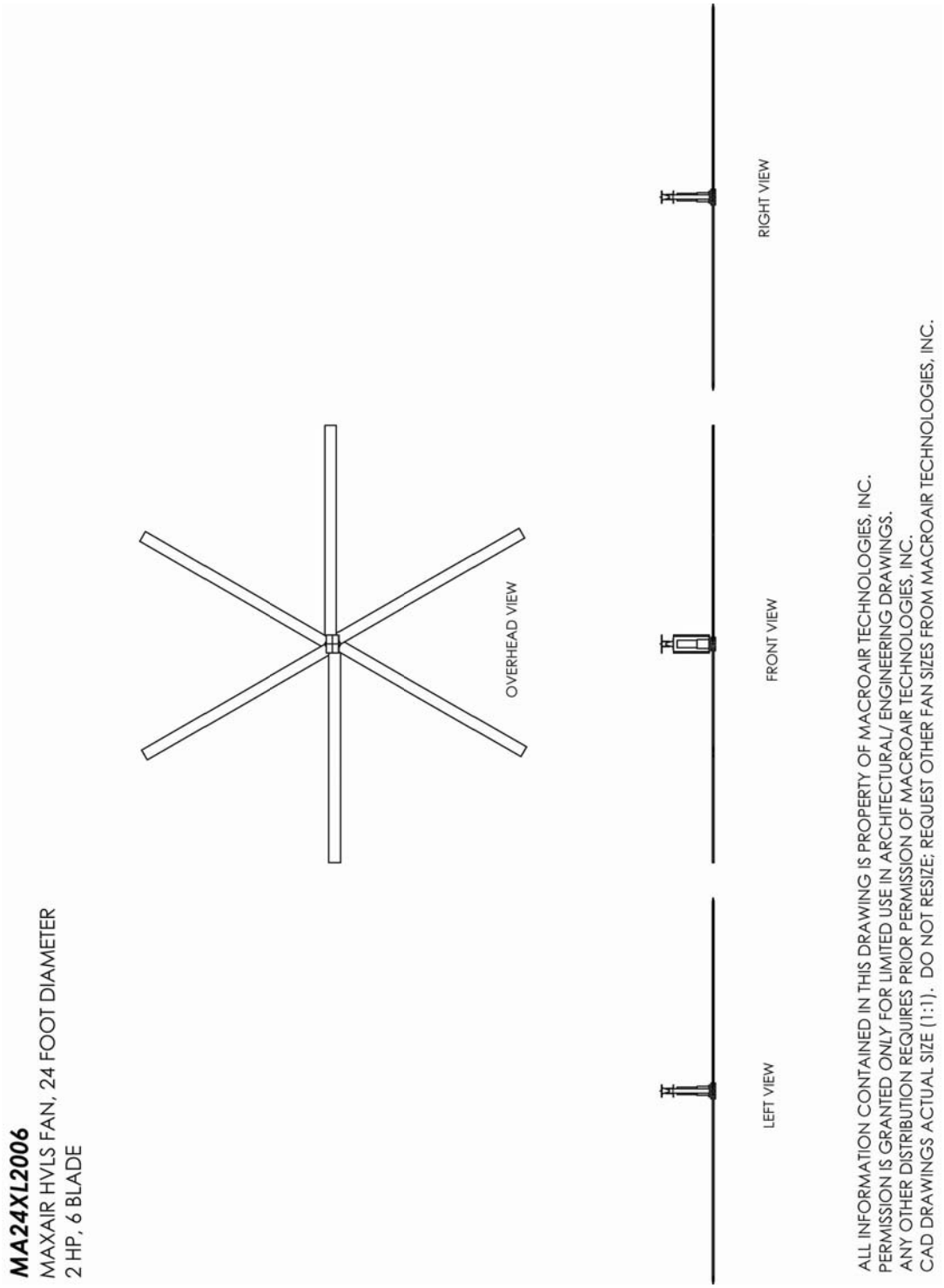
MA24XL2006


OVERHEAD VIEW
RIGHT VIEW
FRONT VIEW
LEFT VIEW
MA24XL2006
MAXAIR HVLS FAN, 24 FOOT DIAMETER
2 HP, 6 BLADE
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CAD DRAWINGS ACTUAL SIZE (1:1). DO NOT RESIZE; REQUEST OTHER FAN SIZES FROM MACROAIR TECHNOLOGIES, INC.

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MacroAir TECHNOLOGIES Built for Life™

THRUST
"102 lbf"

MA24XL2006
MaxAir™ Family

General

Model Number	MA24XL2006
Diameter	24 FT
Blade Style	WhisperFoil XL
Number of Blades	6
Nominal Horsepower	2.0 HP
Hanging Weight (average)	236 LBS
Shipping Weight (Including MCP, Mounting Hardware) (average)	436 LBS
Power Unit Pallet Dimensions / Weight	36" X 36" X 36" / 268 lbs / 0.914 X 0.914 X 0.914 Meters / 121.67 Kg
Blade Pallet Dimensions / Weight	140" X 29" X 18" / 191 lbs / 3.6 X .74 X .46 Meters / 86.8 Kg

Performance (at max speed)

Displacement (fwd, blowing down)	376,804 CFM
Displacement (rev, blowing up)	263,763 CFM
Maximum Speed	65 RPM
Power Usage @ Max. Speed	1.65 KW
Efficiency @ 75% Max. Speed	232.60 CFM/Watt
Maximum Effective Area	20,000 SQ/ FT
Typical Industrial Spacing	110 FT

Construction

Frame	Black Powder Coat / Welded A36 Steel Fabrication
Hybrid Hub	356 T-6 Cast Aluminum
Blade Struts (Invertible)	Black Anodized / 6061 T-6 Aluminum
Blades	Anodized / 6063-T6 Aluminum
Blade End Caps	ABS Plastic

Safety Components

Blade Retaining Links (6)	Zinc Plated / 10 GA A569 Steel
Safety Cable	Galvanized / 1/4" x 7 x 19 Steel Aircraft Grade Cable
Guy Wires	Galvanized / 1/8" x 7 x 19 Steel Aircraft Grade Cable
Safety Link Extenders (6)	Zinc Plated / 10 GA A569 Steel
Rotor Retaining Ring	Zinc Plated / 3/16 A569 Steel

Mounting Hardware

Standard Mount	Universal I-Beam Clamp w/ Swivel Joint and a 7.5" Drop
Glulam Mount (Optional)	Brackets w/ Swivel Joint & 7.5" Drop
Extra Wide / Thick I-Beam Mount (Optional)	Consult Factory
Additional Drop Extensions (Optional)	Up to 10 FT in 1 FT Increments

Motor

HP	2.0
Phase	3
Volts	208-230/460 3Ø
Insulation Class	F

Gearbox

Type	2-Stage Helical
Service Interval	Lubed For Life

Motor Control Panel (MCP)

Standard Power	208-230V 1Ø or 3Ø, 460-480V 3Ø
Enclosure	NEMA 1
Disconnect Switch	20-25 Amp, Lockable
Remote Control Wall Mounted Switch NEMA 4X	Fwd/Off/Rev w/Speed Control Knob
RF Line Filter	Built In
VFD Motor Drive Cable	25 Feet
Remote Cable	100 Feet
Special Wiring (Thermostats, fire alarm interface, networking etc.) (Optional)	Consult Factory
Enclosure (Optional)	NEMA 4/ 4x

50hz Operation (Optional)
Line Reactor (480V Only) (Optional)

Warranty

Motor, Gearbox & Control Panel	12 YRS.*
Blades, Hub & Mounting System	Limited Lifetime

*Labor Allowance to Remove and Replace in 1st Year

Contact MacroAir for full Warranty Details. Specifications are subject to change.

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Summarized Specification Sheets

Airvolution	Maximum Effective Area Typical Industrial Spacing Typical Dairy Spacing	Thrust Fwd Displacement Rev Displacement	Hanging Weight W/Mount Total Shipping Weight	Power Usage Lbs Thrust per Watt CFM per Watt	Service Factor Maximum Speed
MA08XL1006	4,000 Sq. Ft. (371 M^2)	20 Lb/Ft (89 Newtons)		0.361 KW	
1.0 HP 6 Blade	55 Feet (16.75 Meters)	53,693 CFM[A] (25 M^3/Sec)	160 Lbs (73 Kg)	0.055	12.75
8 ft. Whisperfoil XL	45 Feet (13.75 Meters)	37,585 CFM (17 M^3/Sec)	315 Lbs (143 Kg)	148.73 (70.19 M^3)	208 RPM
MA10XL1006	5,000 Sq. Ft. (464.5 M^2)	19 Lb/Ft (84.5 Newtons)		0.559 KW	
1.0 HP 6 Blade	60 Feet (18.25 Meters)	83,025 CFM[A] (39 M^3/Sec)	181 Lbs (82 Kg)	0.034	10.3
10 ft. Whisperfoil XL	50 Feet (15.25 Meters)	58,118 CFM (27 M^3/Sec)	325 Lbs (147 Kg)	148.52 (70.10 M^3)	144 RPM
MA12XL1006	7,000 Sq. Ft. (650 M^2)	27 Lb/Ft (121 Newtons)		0.605 KW	
1.0 HP 6 Blade	65 Feet (19.75 Meters)	97,695 CFM[A] (46 M^3/Sec)	190 Lbs (86 Kg)	0.045	7.7
12 ft. Whisperfoil XL	50 Feet (15.25 Meters)	68,387 CFM (32 M^3/Sec)	335 Lbs (152 Kg)	161.48 (76.21 M^3)	121 RPM
MA14XL1006	8,000 Sq. Ft. (743 M^2)	34 Lb/Ft (153 Newtons)		0.734 KW	
1.0 HP 6 Blade	70 Feet (21.25 Meters)	128,010 CFM (60 M^3/Sec)	194 Lbs (88 Kg)	0.047	6.6
14 ft. Whisperfoil XL	55 Feet (16.75 Meters)	89,607 CFM (42 M^3/Sec)	355 Lbs (161 Kg)	174.40 (82.31 M^3)	104 RPM
MA16XL1006	15,000 Sq. Ft. (1,393.5 M^2)	40 Lb/Ft (180 Newtons)		0.693 KW	
1.0 HP 6 Blade	90 Feet (27.5 Meters)	158,911 CFM (75 M^3/Sec)	208 Lbs (94 Kg)	0.059	4.7
16 ft. Whisperfoil XL	70 Feet (21.25 Meters)	111,238 CFM (52 M^3/Sec)	365 Lbs (165 Kg)	229.31 (108.22 M^3)	88 RPM
MA18XL1006	15,000 Sq. Ft. (1,393.5 M^2)	40 Lb/Ft (180 Newtons)		0.648 KW	
1.0 HP 6 Blade	90 Feet (27.5 Meters)	179,015 CFM (84 M^3/Sec)	222 Lbs (101 Kg)	0.063	3.3
18 ft. Whisperfoil XL	70 Feet (21.25 Meters)	125,311 CFM (59 M^3/Sec)	396 Lbs (180 Kg)	279.26 (130.98 M^3)	71 RPM
MA20XL1006	15,000 Sq. Ft. (1,393.5 M^2)	42 Lb/Ft (186 Newtons)		0.592 KW	
1.0 HP 6 Blade	95 Feet (29 Meters)	201,805 CFM (95 M^3/Sec)	232 Lbs (105 Kg)	0.071	4
20 ft. Whisperfoil XL	75 Feet (22.75 Meters)	141,264 CFM (66 M^3/Sec)	406 Lbs (184 Kg)	340.89 (160.88 M^3)	60 RPM
MA24XL1006	18,000 Sq. Ft. (1,672. M^2)	54 Lb/Ft (242 Newtons)		0.694 KW	
1.0 HP 6 Blade	100 Feet (30.5 Meters)	275,694 CFM (130 M^3/Sec)	240 Lbs (109 Kg)	0.078	3.1
24 ft. Whisperfoil XL	75 Feet (22.75 Meters)	192,986 CFM (91 M^3/Sec)	436 Lbs (198 Kg)	397.25 (187.48 M^3)	50 RPM

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MaxAir	Maximum Effective Area Typical Industrial Spacing Typical Dairy Spacing	Thrust Fwd Displacement Rev Displacement	Hanging Weight W/Mount Total Shipping Weight	Power Usage Lbs Thrust per Watt CFM per Watt	Service Factor Maximum Speed
MA20XL1506	18,000 Sq. Ft. (1,672. M^2)	81 Lb/Ft (360 Newtons)		1.032 KW	
1.5 HP 6 Blade	100 Feet (30.5 Meters)	237,231 CFM (111 M^3/Sec)	217 Lbs (98 Kg)	0.078	2.8
20 ft. Whisperfoil XL	75 Feet (22.75 Meters)	166,062 CFM (78 M^3/Sec)	388 Lbs (176 Kg)	229.88 (108.49 M^3)	70 RPM
MA24XL2006	20,000 Sq. Ft. (1,858 M^2)	98 Lb/Ft (437 Newtons)		1.620 KW	
2.0 HP 6 Blade	110 Feet (33.5 Meters)	376,804 CFM (177 M^3/Sec)	236 Lbs (107 Kg)	0.061	2.1
24 ft. Whisperfoil XL	80 Feet (24.25 Meters)	263,763 CFM (124 M^3/Sec)	436 Lbs (198 Kg)	232.6 (109.77 M^3)	54 RPM
Specialty	**Maximum Effective Area Typical Industrial Spacing Typical Dairy Spacing**	**Thrust Fwd Displacement Rev Displacement**	**Hanging Weight W/Mount Total Shipping Weight**	**Power Usage Lbs Thrust per Watt CFM per Watt**	**Service Factor Maximum Speed**
MA06WB3806 (eco6)	100 Ft. x 20 Ft. (19M x 1.75M)	10 Lb/Ft (44 Newtons)		0.265 KW	
.375 HP 6 Blade	45 Feet (13.75 Meters)	29,551 CFM (13 M^3/Sec)	233 Lbs (106 Kg)	0.038	3.6
6 ft. Wickerbill	40 Feet (12.25 Meters)	20,686 CFM (9 M^3/Sec)	420 Lbs (191 Kg)	111.51 (52.63 M^3)	240 RPM
MA14XL1006-AG (Ag-GreenStar)	8,000 Sq. Ft. (743 M^2)	34 Lb/Ft (153 Newtons)		0.678 KW	
1.0 HP 6 Blade	70 Feet (21.25 Meters)	128,010 CFM (60 M^3/Sec)	194 Lbs (88 Kg)	0.051	2.8
14 ft. Whisperfoil XL	55 Feet (16.75 Meters)	Single-Speed, No Reverse	355 Lbs (161 Kg)	188.81 (89.11 M^3)	104 RPM

Notes

GENERAL NOTES: The data in this specification sheet represents the most current data developed by MacroAir Technologies or other agencies, including AMCA. MacroAir is constantly seeking to improve its products for the betterment of its customers; we therefore reserve the right to change these specifcations as required without notification. All our fans are tested at 75% normal operating speed, except for single-speed models, which are tested at full operating speed. Hanging and shipping weights are estimates and therefore subject to change. Please contact our shipping department for the latest information on shipping container sizes and weights.

VOLTAGES: Variable-speed fans use 1Φ or 3Φ 208-240VAC or 3Φ 460-480VAC. Single-speed models use 3Φ 208-240VAC or 3Φ 460-480VAC; they may be connected to 1Φ 208-240VAC at an additional cost.

CONTROLLERS: Variable-speed fans are controlled by a Variable Frequency Drive (VFD) with a built-in input filter that converts 1Φ to 3Φ and allows the fan to be operated at various speeds. The VFD, fusing, ground bar, and disconnect switch are mounted in a NEMA-1 rated metal enclosure. MacroAir controllers come with 25 feet (maximum recommended length) of shielded motor cable and cable glands to aid EMI/RFI suppression. Line reactors for 3Φ 480VAC are available if required. Each fan also comes with a remote control switchbox containing the Forward-Off-Reverse switch and the speed control switch. The entire assembly is NEMA 4 rated and comes with 100 feet of control cable.

MOTORS AND GEAR REDUCERS: Extensive research has gone into the selection of our motors and gear reducers. We feel we have chosen the best products available to us; however, as we seek to improve our fans, we may find better products. In any case, all motors will continue to meet our high standards for efficiency and longevity, and all gearboxes will continue to be long-lasting and permanently lubricated.

MATERIALS AND COATINGS: All frame and mounting hardware components are laser-cut from A36 steel tubing and 1025 cold-roll steel plate, MIG-welded in-house, and powdercoated black. Hubs are cast from 713 aluminum and shot-peened, then mated with blade struts that are either extruded from 6061 aluminum and black anodized or machined from 1025 cold-roll steel and zinc-plated, depending on the intended application. Our blades are extruded from 6063-T6 aluminum and clear anodized, with black ABS plastic tips (cast aluminum for Wickerbill and original Whisperfoil). The 2-part interlocking safety system components are laser-cut from 3/16" 1025 cold-roll steel plate and zinc plated, while the safety retaining links are laser-cut from 10 gage 1025 cold-roll steel plate and zinc-plated. Safety cables and guy wires are cut in-house from 1/4" x 7 x 19 and 1/8" x 7 x 19 galvanized aircraft cable, respectively. All our fasteners are zinc-plated.

APPEARANCE AND PROTECTION OPTIONS (EXTRA COST): Blades may be ordered in a variety of colors and finishes, including color anodizing, standard powder coating, and specialty powder coating such as woodgrain. Hubs may be ordered polished and gold-colored blade fasteners may be substituted for the standard silver colored zinc plating. Frames and mounts may also be ordered in various colors and finishes including powder coating, zinc plating (clear or colored), and galvanizing, and frame stickers may be relocated to less conspicuous positions. For additional safety, we offer special fans with explosion-proof motors; a corrosion protection package is also available that includes Heresite coating of frames, mounts, gearboxes, blades, and hubs and substituting stainless steel motors, safety cables, guy wires, and fasteners for the standard zinc plating. Other options may also be available; contact sales representative or factory for further information.

ECO6 WALL-MOUNT FAN: This fan is available in several configurations; please contact sales representative or factory for more information. The eco6 may be mounted on wall or pole, and no guy wires are required for this fan.

[A] CFM Numbers are AMCA Certified, "See Air Performance Certified Ratings".

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MacroAir™ TECHNOLOGIES Built for Life™

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- STANDARD BLADE COLOR IS ALUMINUM SILVER
- BLADES AVAILABLE IN SELECT COLORS

air performance certified ratings January 2008

Model Number	HVLS Series	Fan Size	Blades	Voltage	Barometric pressure	Ambient Air Density	Input Power Watts	Kilowatts	Impeller Speed	Thrust ft. (lbf)
MA12XL1006	Airvolution	12	Six	480	29.09	0.0722	605.0	0.605	121 rpm	27.32
MA10XL1006	Airvolution	10	Six	480	29.10	0.0722	559.0	0.559	144 rpm	19.73

The AMCA Certified Ratings Seal applies to airflow rate at free delivery only. Speed (rpm or rps) shown is nominal. Performance is based on actual speed of test

CR08-1 January 2008

amca CERTIFIED RATINGS — CIRCULATING FAN PERFORMANCE — AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.®

"MacroAir Technologies certifies that the Airvolution™ HVLS™ Fan Series is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program."

"Performance ratings include the effects of the variable frequency drive."

MacroAir TECHNOLOGIES

THE ORIGINAL BIG FANS™ Since 1995

www.macro-air.com

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General Information

General Information

Hybrid Hub

Fan clearance & extension guide

Universal Mounting Hardware

Vertical Dimensions Diagram

Mounting extension

Guy wire placement

Control Panel

- *Enclosure Mounting Dimensions*
- *Remote Enclosure Mounting Dimensions*
- *Schematic (Including remote control)*
- *Control Layout Diagram*

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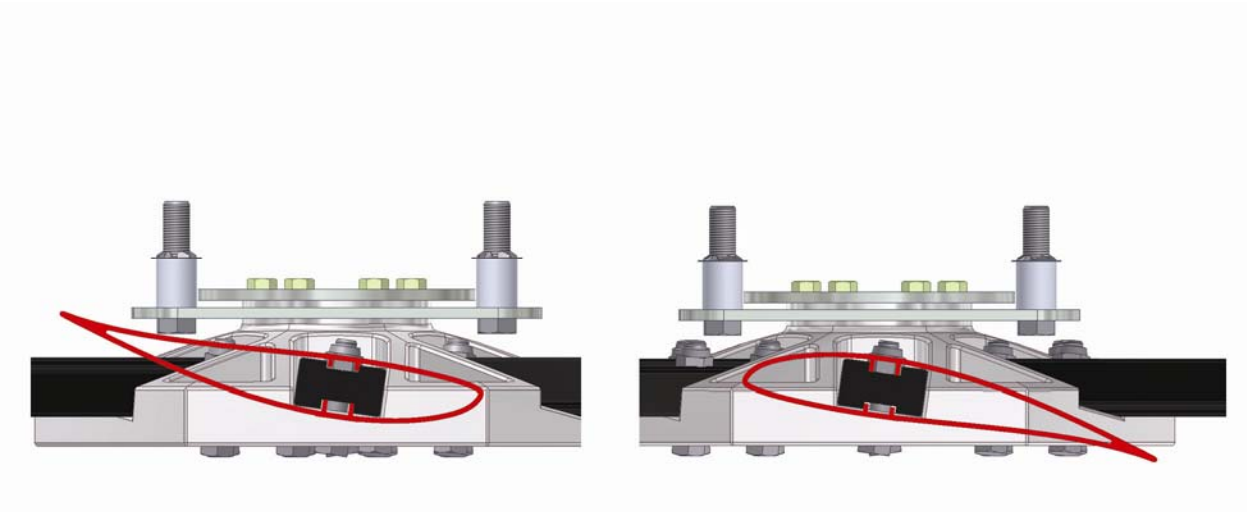
Hybrid Hub



The Hybrid Hub

Hybrid Hub: *Maximum strength, minimum weight, optimum functionality. Pat. Pending*

H Beam struts are engineered with lock keys to ensure precision alignment.

Struts can be inverted for maximum reversed (upward) airflow.

Hub honey-comb engineering optimizes strength and product life.

H Beam Blade Struts (Invertible) are extruded 6061-T6 wrought aluminum.

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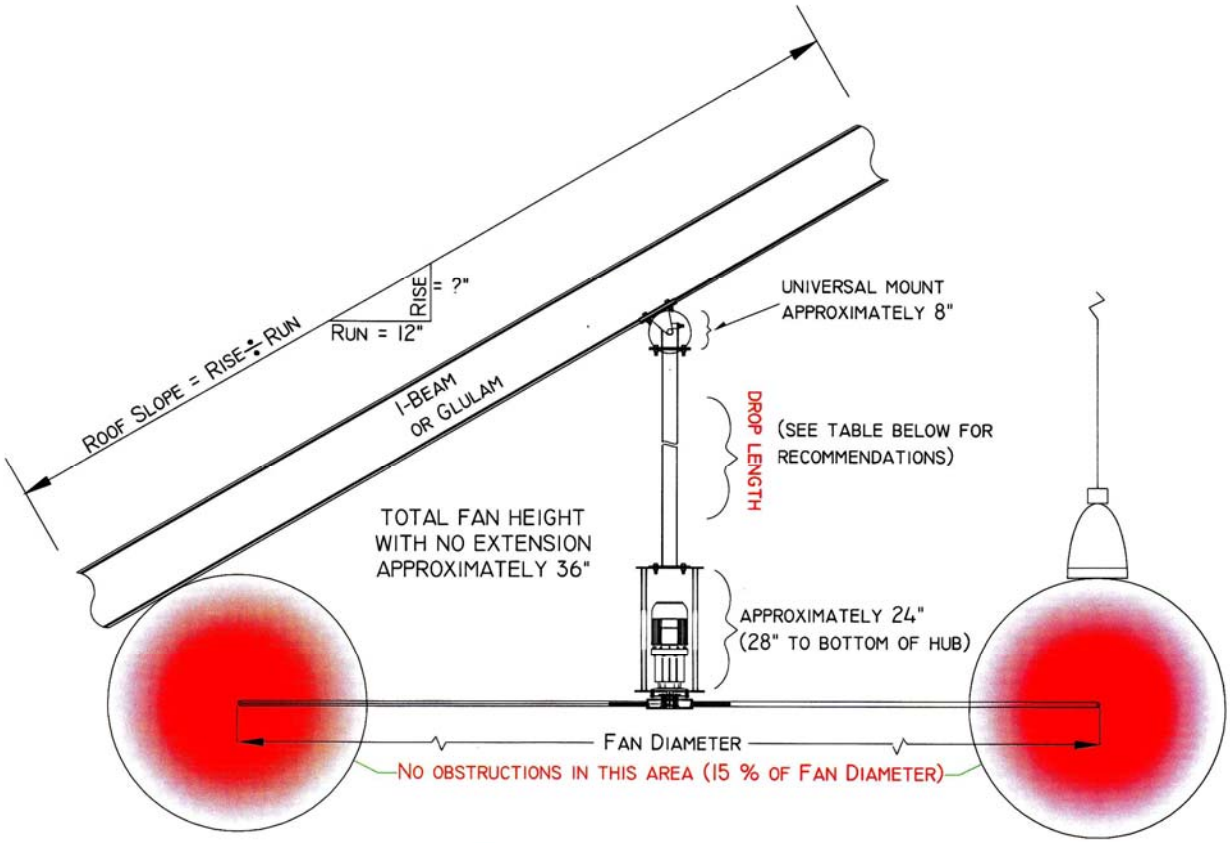
FAN CLEARANCE AND EXTENSION GUIDE


ROOF SLOPE = RISE ÷ RUN
RISE = ?"
RUN = 12"
I-BEAM OR GLULAM
UNIVERSAL MOUNT APPROXIMATELY 8"
DROP LENGTH
(SEE TABLE BELOW FOR RECOMMENDATIONS)
TOTAL FAN HEIGHT WITH NO EXTENSION APPROXIMATELY 36"
APPROXIMATELY 24" (28" TO BOTTOM OF HUB)
FAN DIAMETER
NO OBSTRUCTIONS IN THIS AREA (15 % OF FAN DIAMETER)

SLOPE (in)	2/12	4/12	6/12	8/12	10/12	
ROOF ANGLE	9.5°	18.4°	26.6°	33.7°	39.8°	
Fan Diameter (Ft.)	**Recommended Extension Length**					**Clearance Zone Radius**
6	N/A	N/A	N/A	N/A	1	11"
8	N/A	N/A	N/A	1	2	15"
10	N/A	N/A	1	2	3	18"
12	N/A	N/A	1	3	4	22"
14	N/A	1	2	4	5	26"
16	N/A	1	3	4	6	29"
18	N/A	1	3	5	7	33"
20	N/A	2	4	6	8	36"
24	N/A	3	5	8	10	44"

THE EXTENSION LENGTHS ABOVE ARE MINIMUM RECOMMENDATIONS ONLY, BASED SOLELY ON ROOF PITCH AND FAN DIAMETER. OTHER CONSIDERATIONS MUST BE EVALUATED WHEN DETERMINING EXTENSION REQUIREMENTS, SUCH AS PLACEMENT OF LIGHTS, SPRINKLER SYSTEMS, HVAC SYSTEMS, AND SO ON. IN ADDITION, OSHA REQUIREMENTS STATE THAT FAN BLADES MUST BE A MINIMUM OF 10 FEET (3.05 METERS) ABOVE THE FLOOR. CONTACT OUR SALES DEPARTMENT FOR ASSISTANCE WITH FAN PLACEMENT AND EXTENSION SELECTION.

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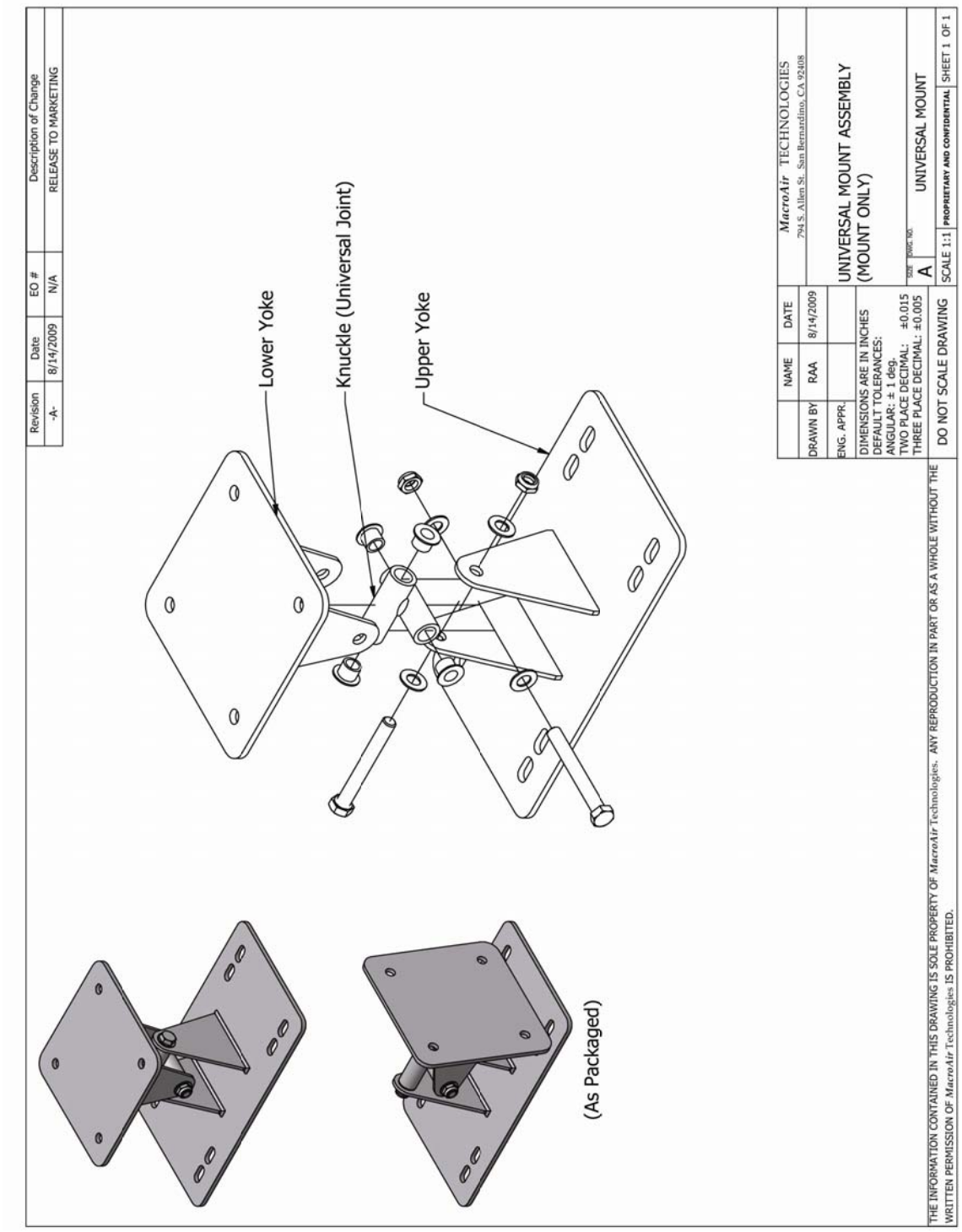

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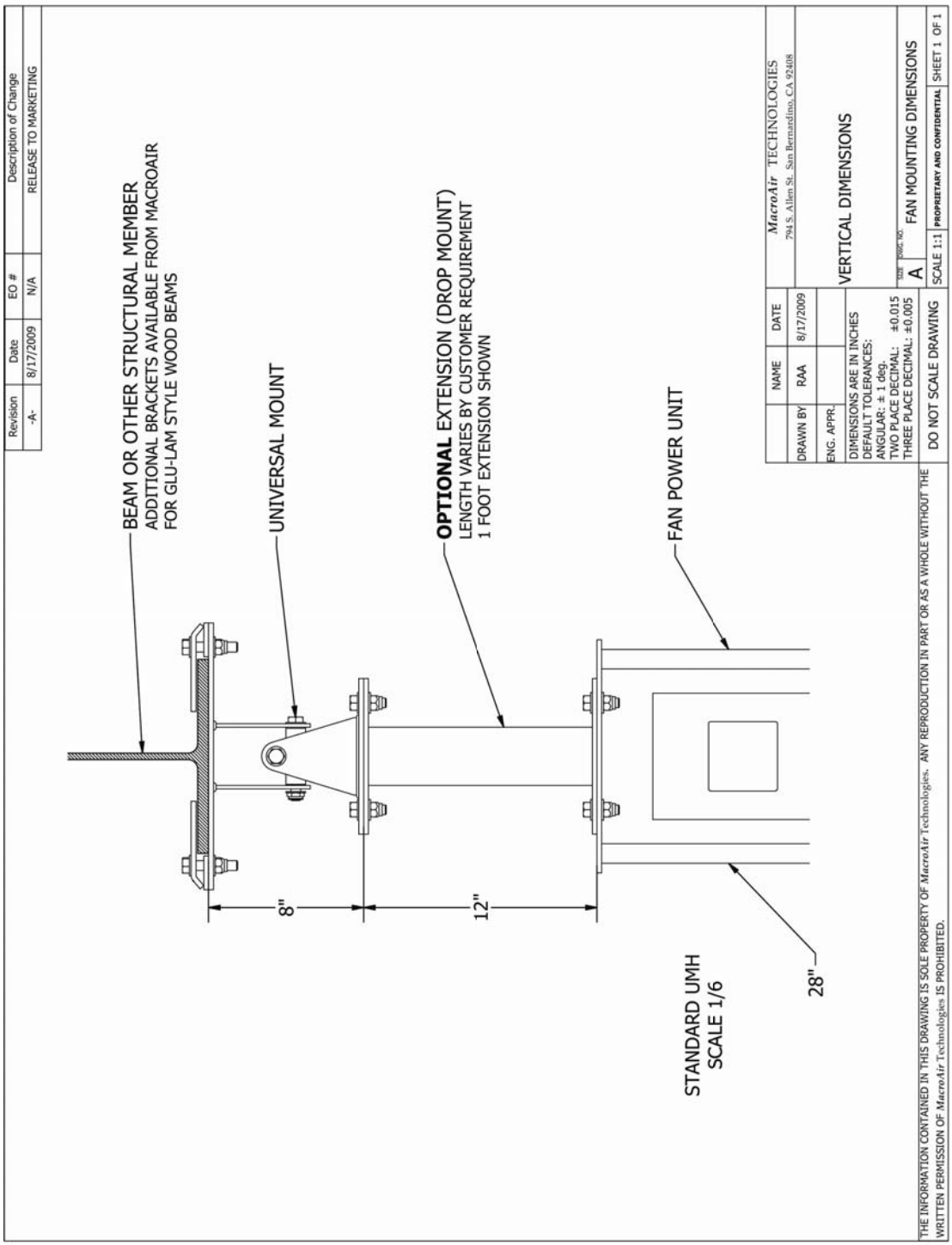

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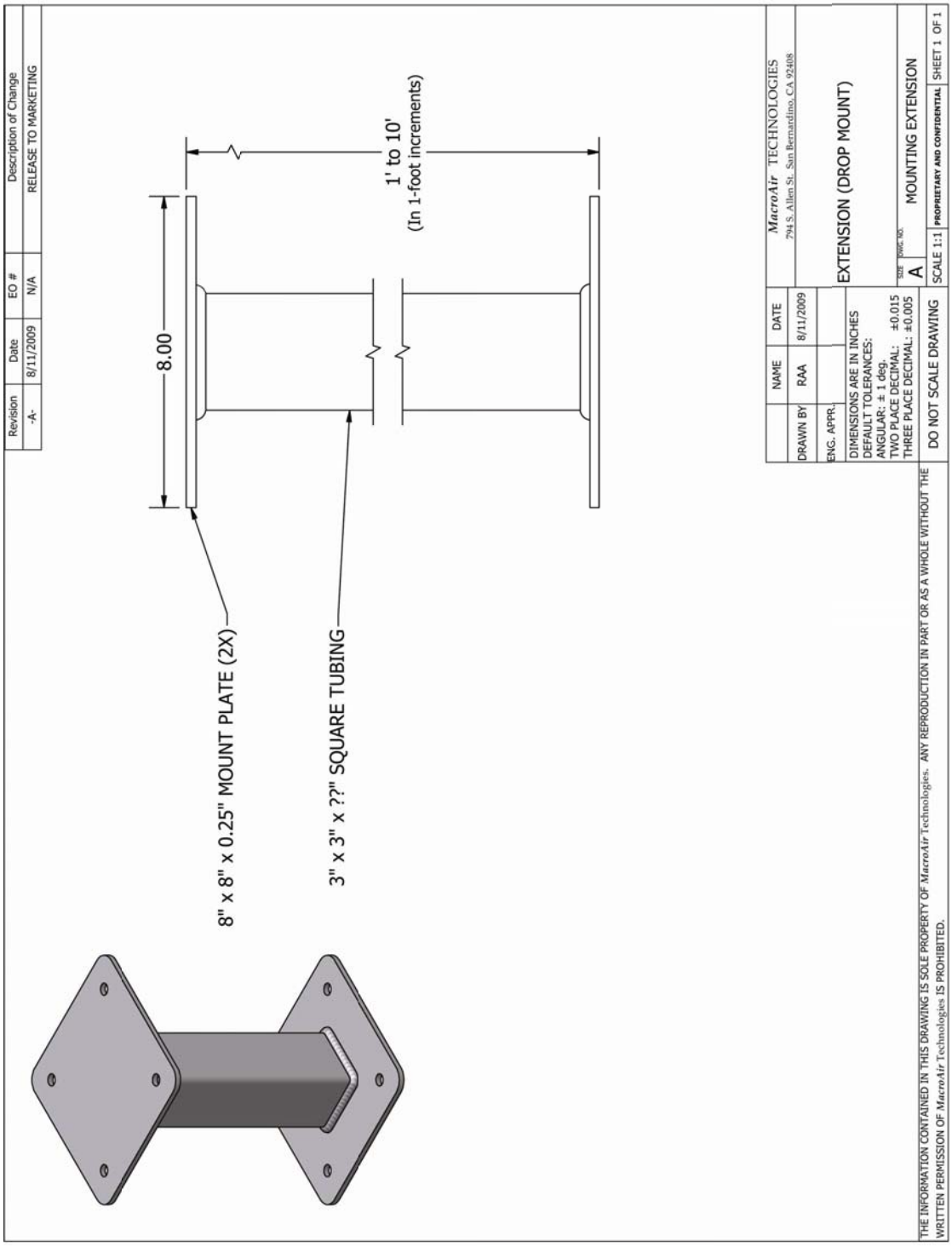

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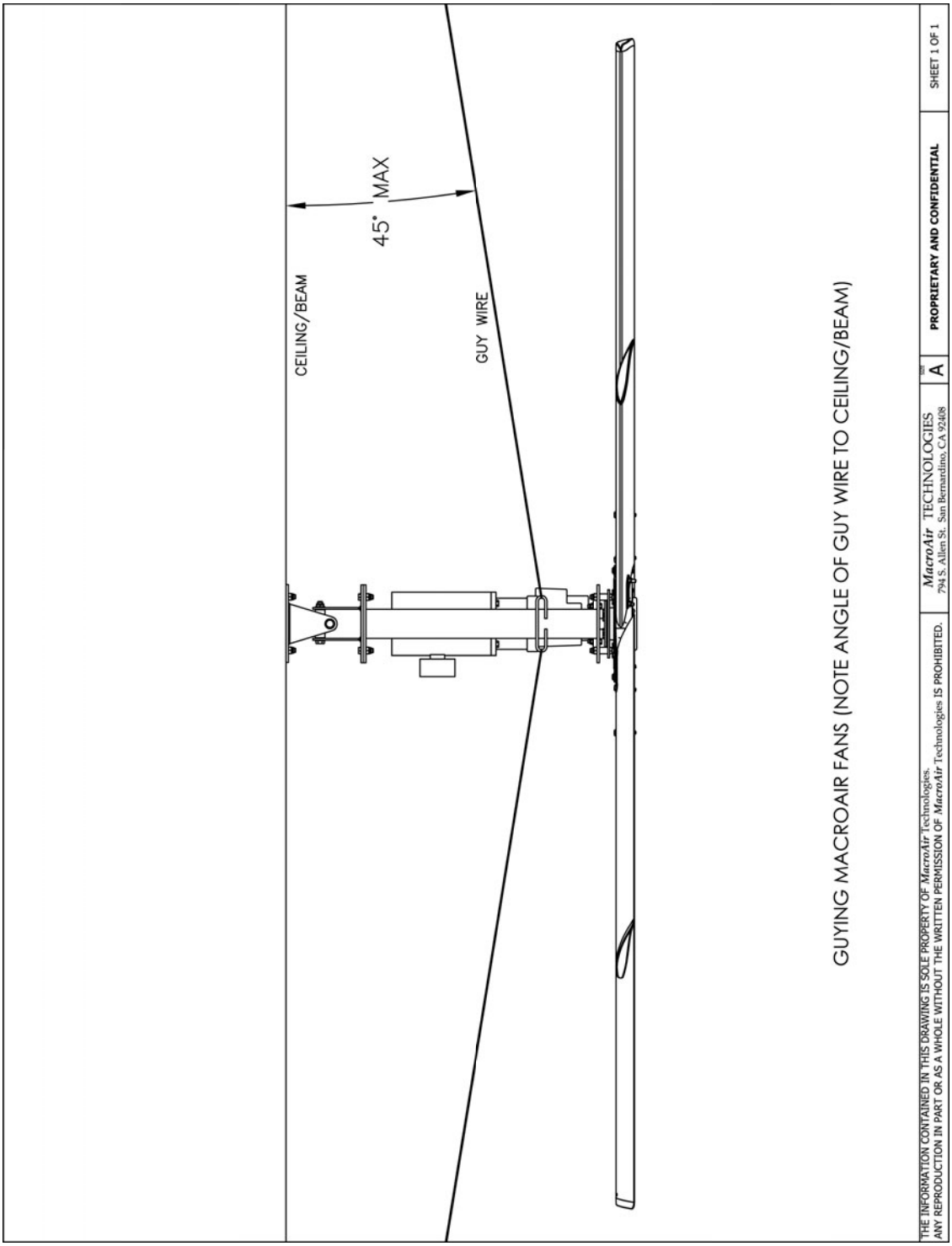
CEILING/BEAM
45° MAX
GUY WIRE
GUYING MACROAIR FANS (NOTE ANGLE OF GUY WIRE TO CEILING/BEAM)
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SIZE A
PROPRIETARY AND CONFIDENTIAL
SHEET 1 OF 1

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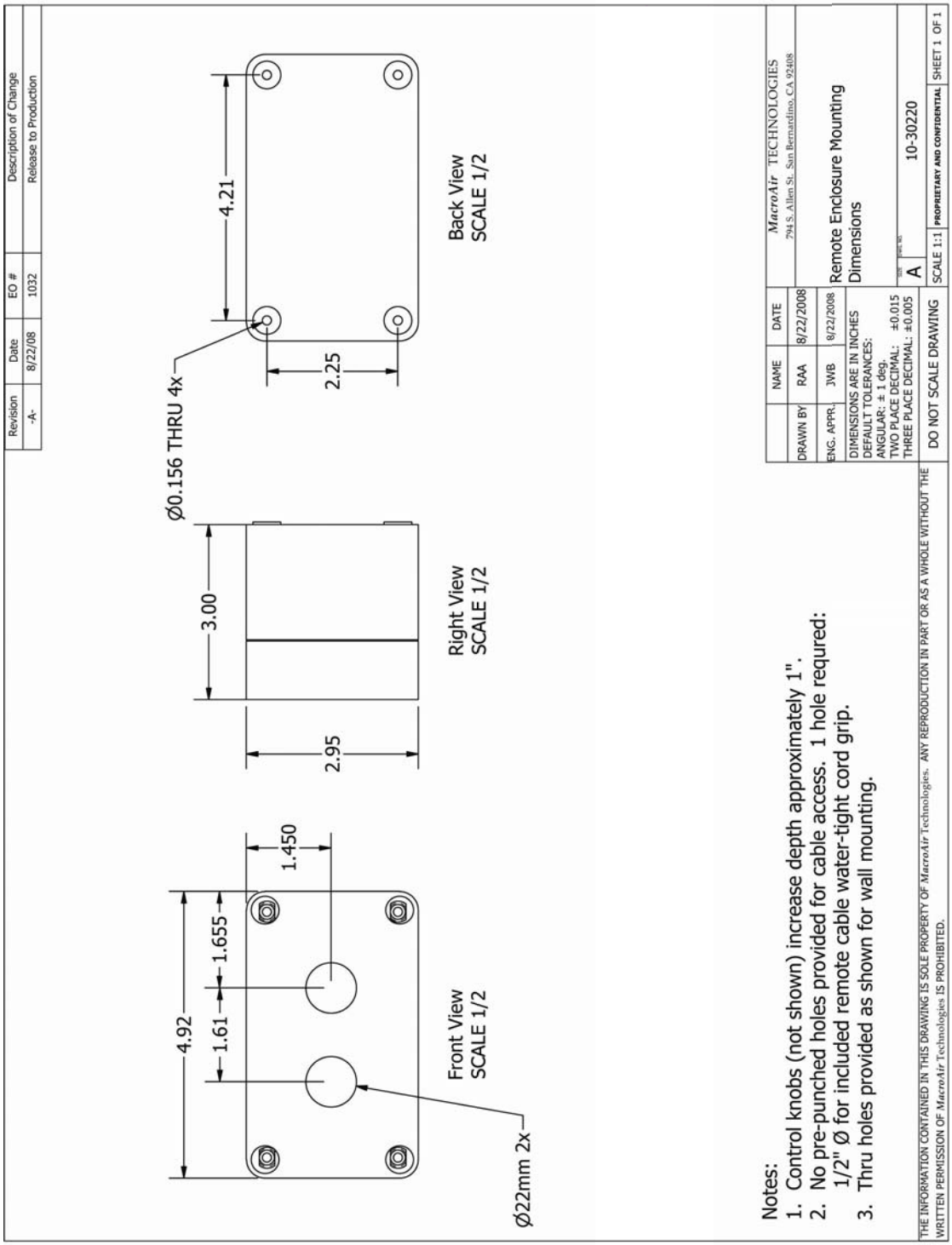

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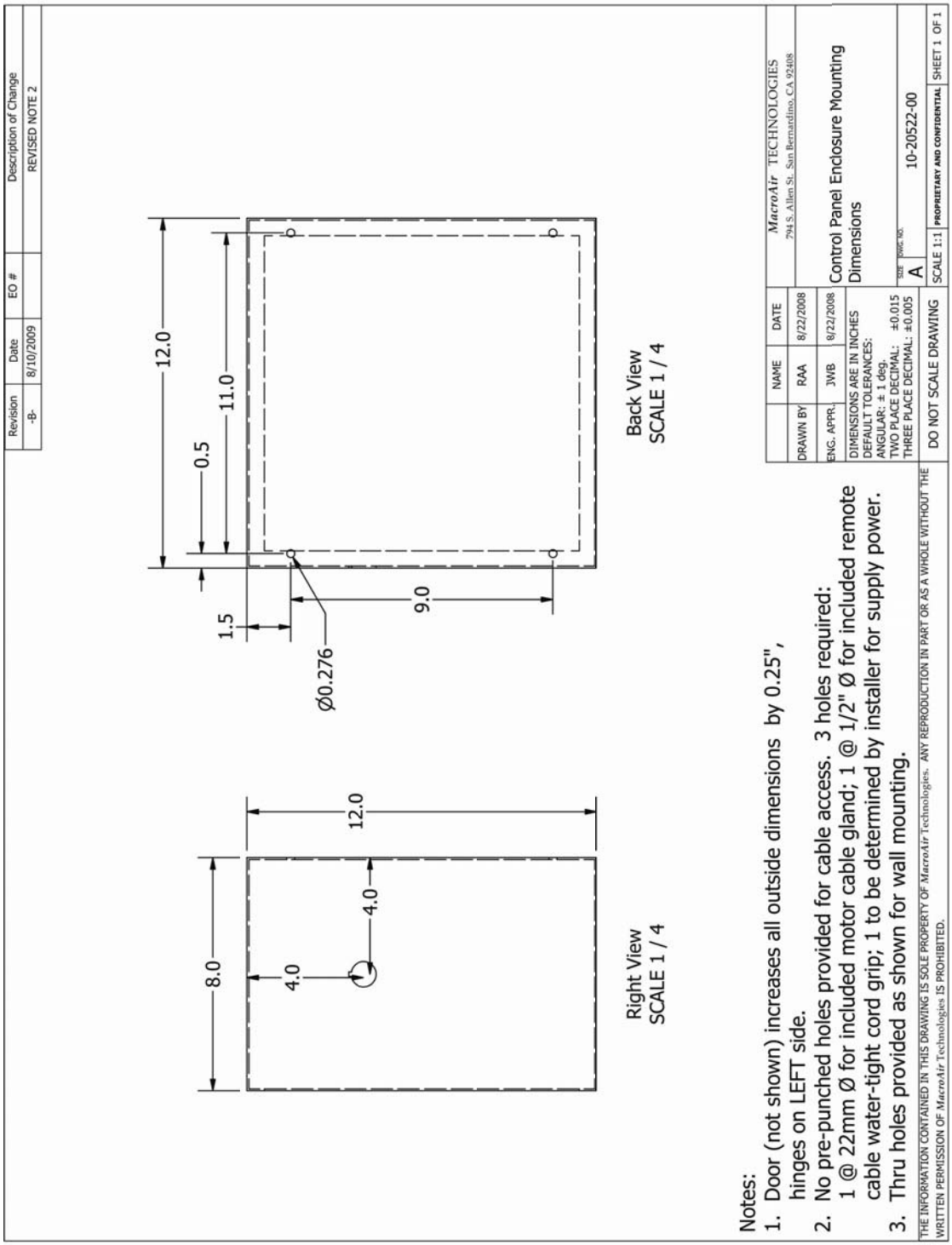

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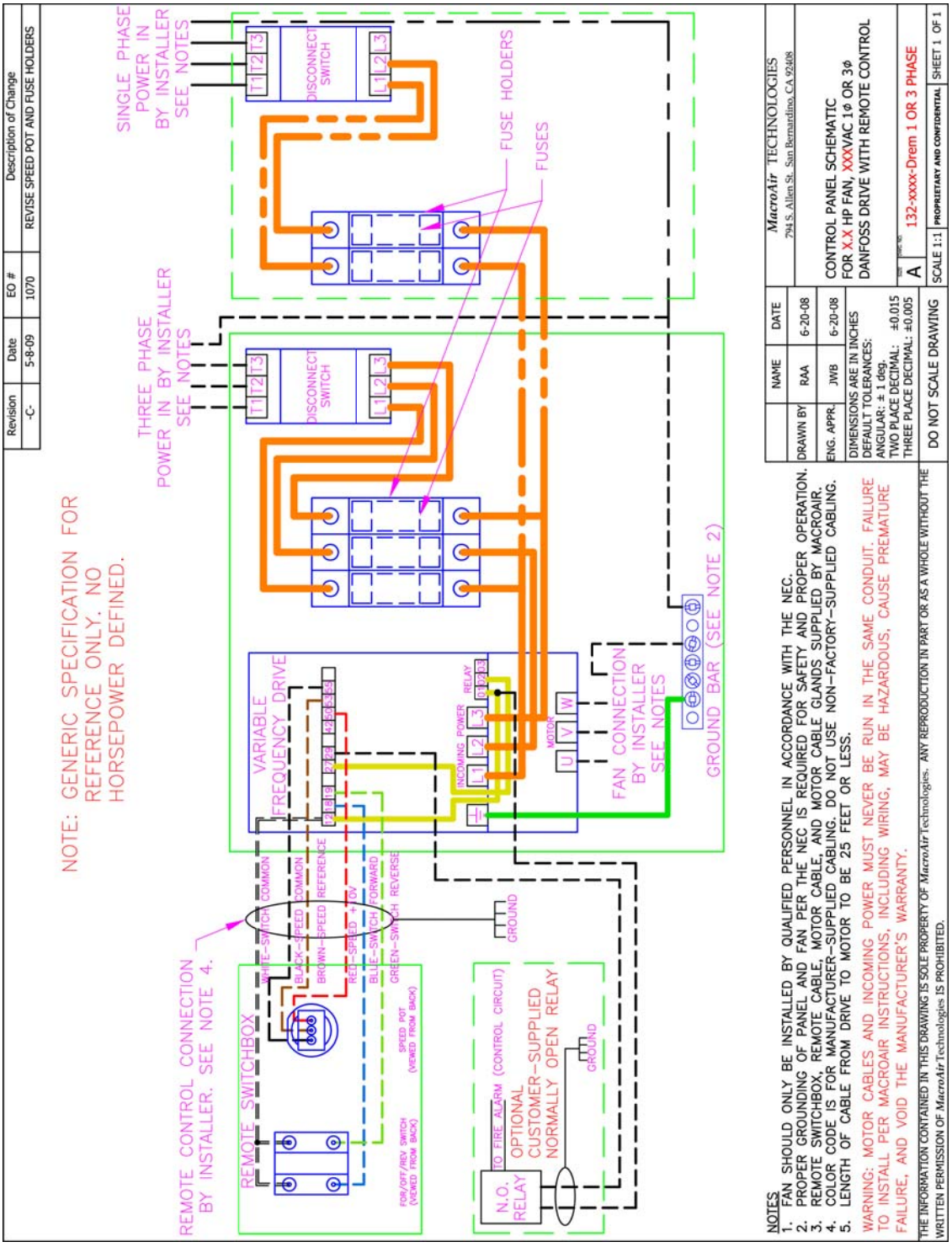
Revision
-C-
Date
5-8-09
EO #
1070
Description of Change
REVISE SPEED POT AND FUSE HOLDERS
NOTE: GENERIC SPECIFICATION FOR REFERENCE ONLY. NO HORSEPOWER DEFINED.
SINGLE PHASE POWER IN BY INSTALLER SEE NOTES
THREE PHASE POWER IN BY INSTALLER SEE NOTES
DISCONNECT SWITCH
T1 T2 T3
L1 L2 L3
FUSE HOLDERS
FUSES
VARIABLE FREQUENCY DRIVE
INCOMING POWER
MOTOR
RELAY
FAN CONNECTION BY INSTALLER SEE NOTES
GROUND BAR (SEE NOTE 2)
REMOTE CONTROL CONNECTION BY INSTALLER. SEE NOTE 4.
REMOTE SWITCHBOX
WHITE-SWITCH COMMON
BLACK-SPEED COMMON
BROWN-SPEED REFERENCE
RED-SPEED +10V
BLUE-SWITCH FORWARD
GREEN-SWITCH REVERSE
SPEED POT (VIEWED FROM BACK)
FOR/OFF/REV SWITCH (VIEWED FROM BACK)
GROUND
TO FIRE ALARM (CONTROL CIRCUIT)
OPTIONAL CUSTOMER-SUPPLIED NORMALLY OPEN RELAY
N.O. RELAY
GROUND
NOTES
1. FAN SHOULD ONLY BE INSTALLED BY QUALIFIED PERSONNEL IN ACCORDANCE WITH THE NEC.
2. PROPER GROUNDING OF PANEL AND FAN PER THE NEC IS REQUIRED FOR SAFETY AND PROPER OPERATION.
3. REMOTE SWITCHBOX, REMOTE CABLE, MOTOR CABLE, AND MOTOR CABLE GLANDS SUPPLIED BY MACROAIR.
4. COLOR CODE IS FOR MANUFACTURER-SUPPLIED CABLING. DO NOT USE NON-FACTORY-SUPPLIED CABLING.
5. LENGTH OF CABLE FROM DRIVE TO MOTOR TO BE 25 FEET OR LESS.
WARNING: MOTOR CABLES AND INCOMING POWER MUST NEVER BE RUN IN THE SAME CONDUIT. FAILURE TO INSTALL PER MACROAIR INSTRUCTIONS, INCLUDING WIRING, MAY BE HAZARDOUS, CAUSE PREMATURE FAILURE, AND VOID THE MANUFACTURER'S WARRANTY.
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NAME
DATE
DRAWN BY
RAA
6-20-08
ENG. APPR.
JWB
6-20-08
DIMENSIONS ARE IN INCHES
DEFAULT TOLERANCES:
ANGULAR: ± 1 deg.
TWO PLACE DECIMAL: ±0.015
THREE PLACE DECIMAL: ±0.005
DO NOT SCALE DRAWING
MacroAir TECHNOLOGIES
794 S. Allen St. San Bernardino, CA 92408
CONTROL PANEL SCHEMATIC
FOR X.X HP FAN, XXXVAC 1ø OR 3ø
DANFOSS DRIVE WITH REMOTE CONTROL
SIZE
A
DWG NO
132-xxxx-Drem 1 OR 3 PHASE
SCALE 1:1
PROPRIETARY AND CONFIDENTIAL
SHEET 1 OF 1

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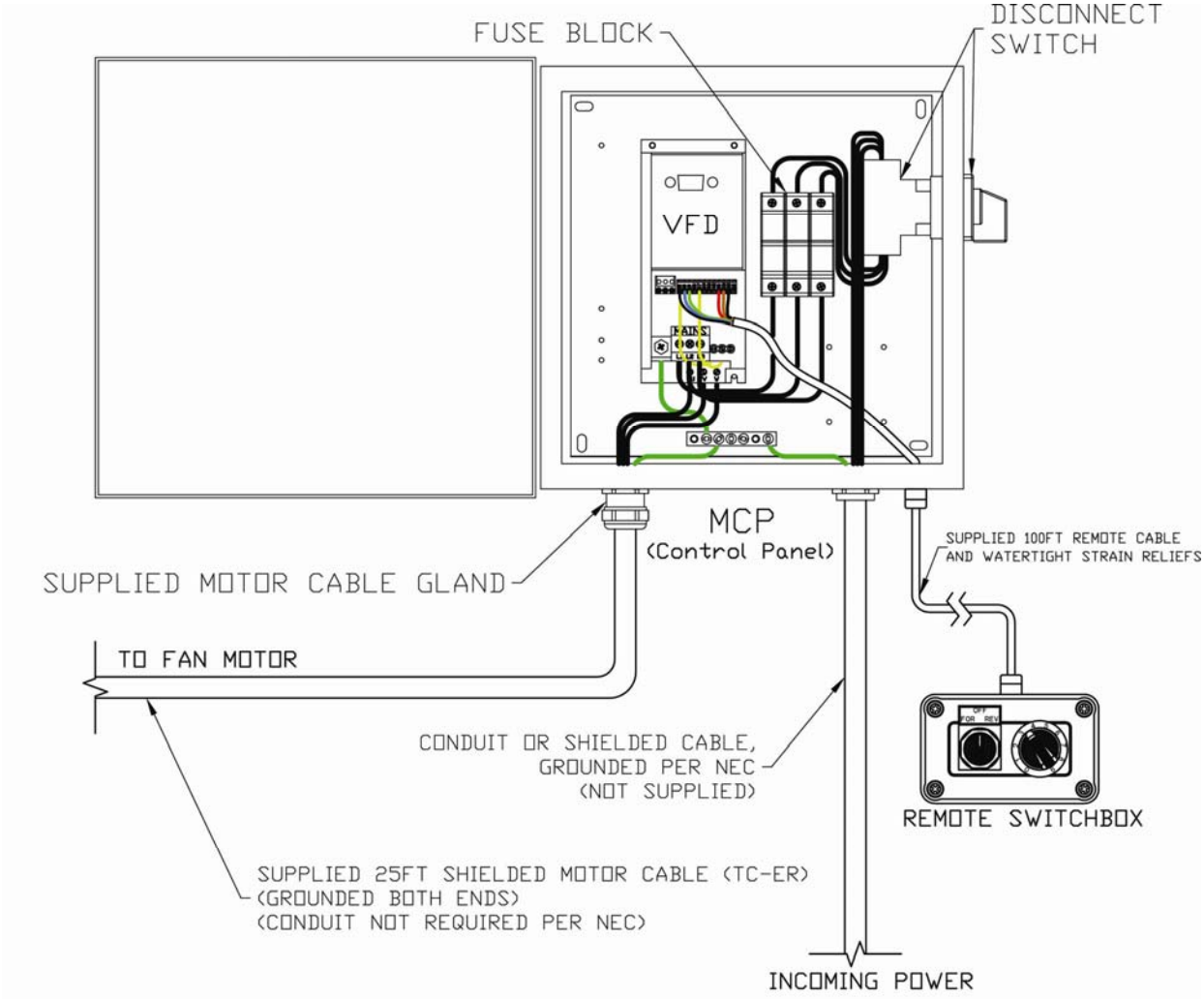
FUSE BLOCK
DISCONNECT SWITCH
VFD
MCP
(Control Panel)
SUPPLIED MOTOR CABLE GLAND
SUPPLIED 100FT REMOTE CABLE AND WATERTIGHT STRAIN RELIEFS
TO FAN MOTOR
CONDUIT OR SHIELDED CABLE, GROUNDED PER NEC (NOT SUPPLIED)
REMOTE SWITCHBOX
SUPPLIED 25FT SHIELDED MOTOR CABLE (TC-ER) (GROUNDED BOTH ENDS) (CONDUIT NOT REQUIRED PER NEC)
INCOMING POWER

NOTES

1. FAN SHOULD ONLY BE INSTALLED BY QUALIFIED PERSONNEL IN ACCORDANCE WITH THE NEC.
2. PROPER GROUNDING OF PANEL AND FAN PER THE NEC IS REQUIRED FOR SAFETY AND PROPER OPERATION.
3. REMOTE SWITCHBOX, REMOTE CABLE, MOTOR CABLE, AND MOTOR CABLE GLANDS SUPPLIED BY MACROAIR.
4. LENGTH OF CABLE FROM DRIVE TO MOTOR TO BE 25 FEET OR LESS.
5. THIS PAGE IS FOR ILLUSTRATION PURPOSES ONLY. FOR ALL INSTALLATIONS, REFER TO THE CONTROL PANEL SCHEMATIC PACKAGED INSIDE THE MCP.

WARNING: MOTOR CABLES AND INCOMING POWER MUST NEVER BE RUN IN THE SAME CONDUIT. FAILURE TO INSTALL PER MACROAIR INSTRUCTIONS, INCLUDING WIRING, MAY BE HAZARDOUS, CAUSE PREMATURE FAILURE, AND VOID THE MANUFACTURER'S WARRANTY.

Motor Control Panel Components are all UL Listed. UL Listing on Control Panel and Complete Fans available.

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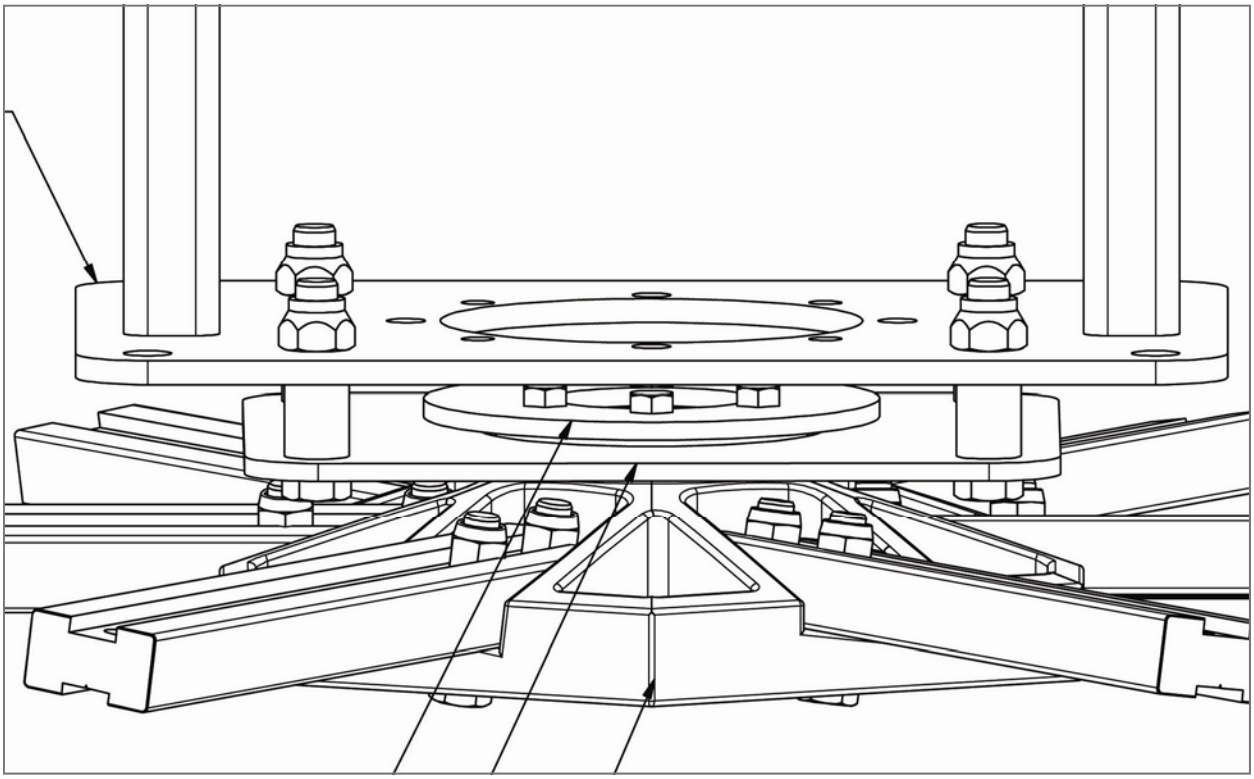
Safety & Installation



Two part Interlocking Safety system

Patent pending Two Part Interlocking Safety System (See Page 59), this is one component of the redundant integrated safety systems on all MacroAir 6 blade fans that prevent blades or hub from separation (falling) in the event of an unlikely catastrophic failure.

Fire Safety

MacroAir 6 blade fans offer the lowest solidity ratio (lowest ESFR sprinkler obstruction potential) available.

All MacroAir controllers are E-Stop compatible for shutdown by ESFR systems, Smoke detection systems or any other auxiliary shutdown device.

Installation Manual

Simple step by step installation process, including mounting options and considerations.
CLICK HERE TO DOWNLOAD.

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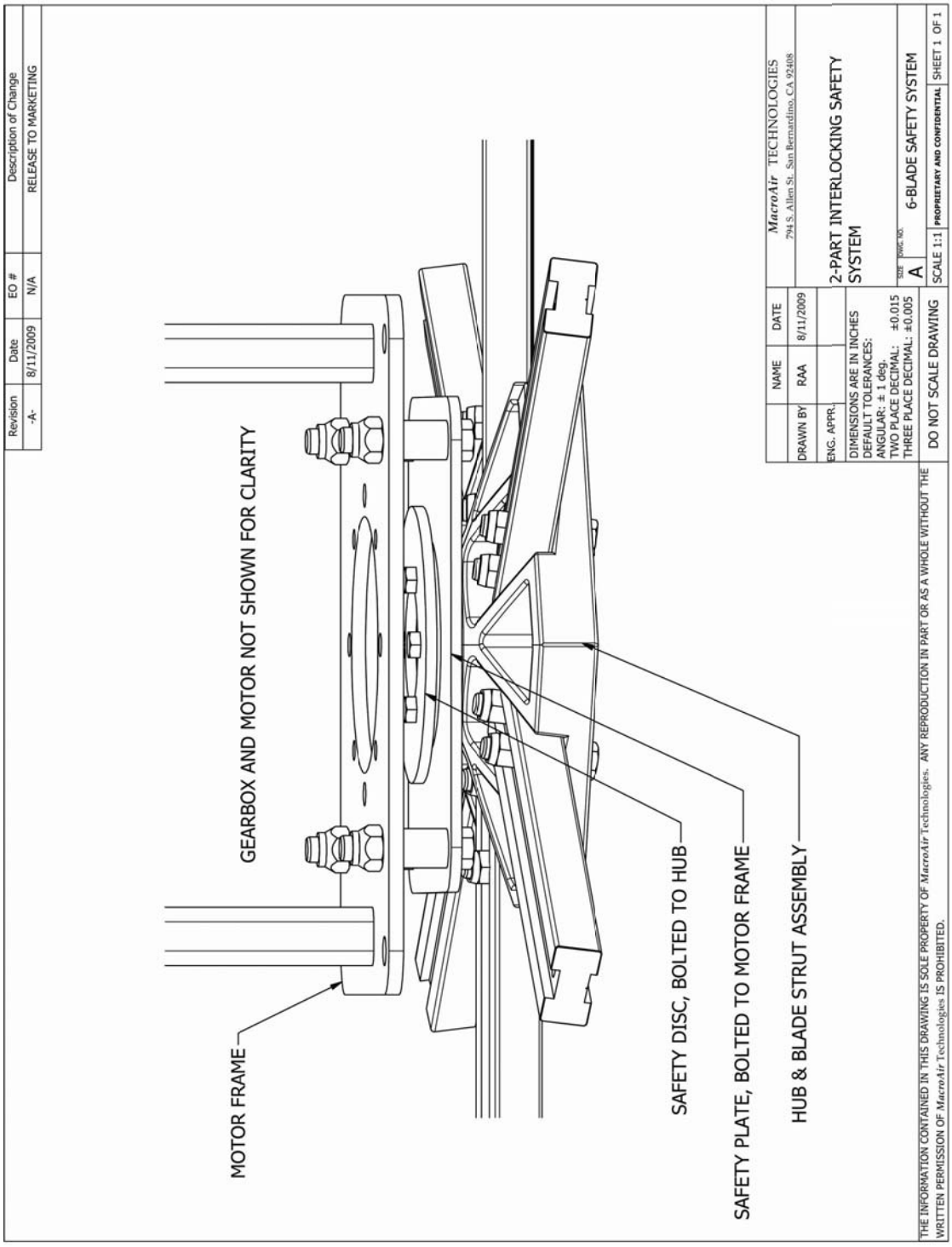

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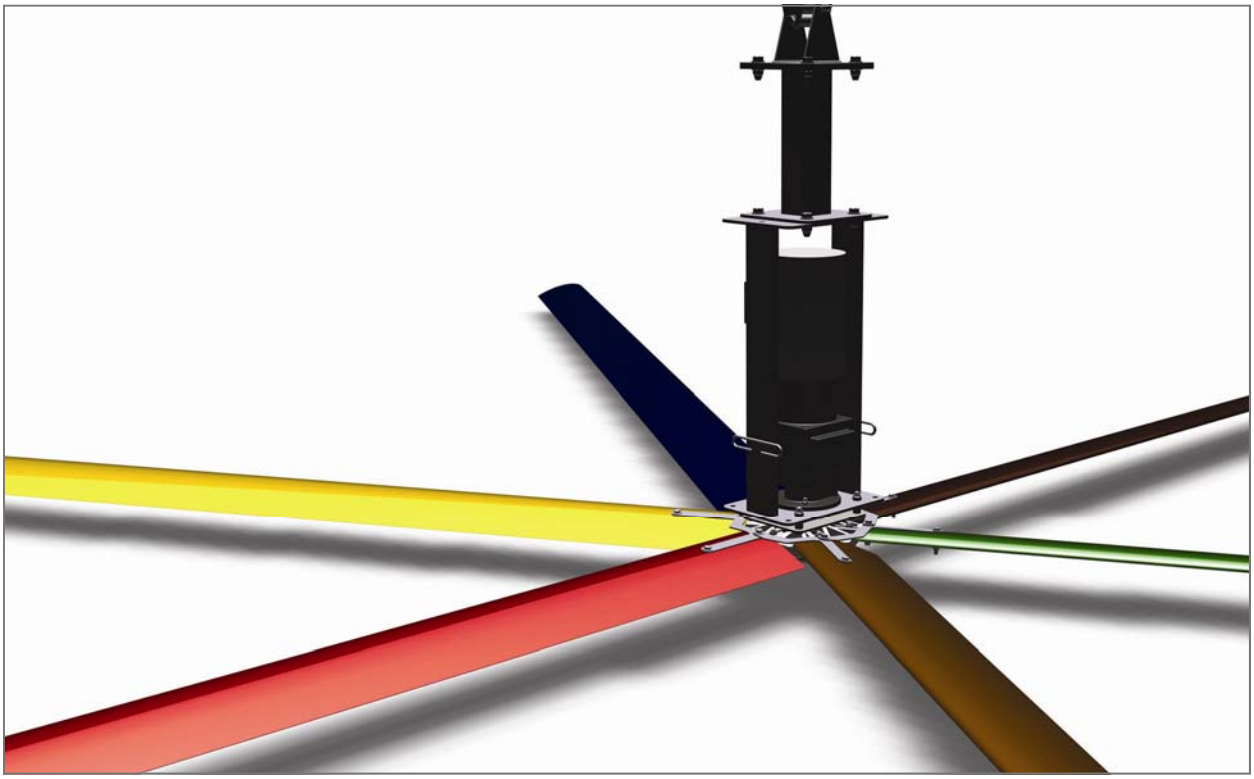
Fan Options



MacroAir Fans offer a multitude of standard and custom options that not only meet your projects mechanical and functional requirements, but allow you aesthetic creativity as well.

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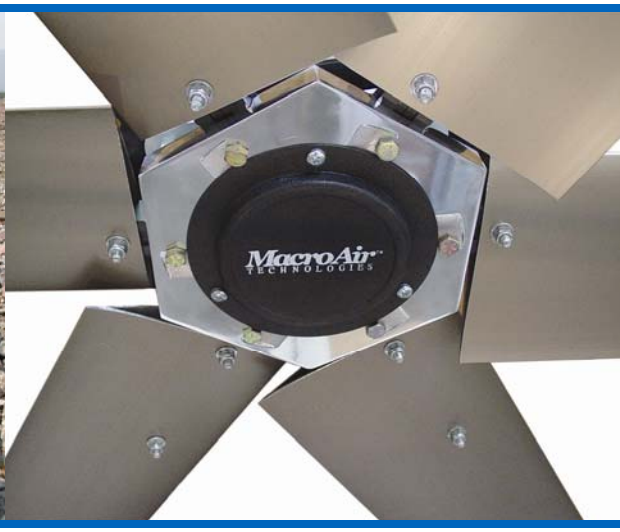

Blade Options

Powder Coated, Anodized

Motor Options

Single Phase
Stainless Steel
Explosion Proof

Custom Options

(Consult Factory for Details)

Corrosion Protection Pkg
Quiet Fan Package
Designer Fans

Control Panel Options

NEMA 4 Enclosure
NEMA 4X Enclosure
NEMA 12 Enclosure
UL Listing

ENGINEERING& DESIGN GUIDE

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